DOCUMENT RESUME

ED 083 503	CG 008 361
AUTHOR	Faunce, Patricia S.
TITLE	The Effect of Personality Characteristics of High, Middle, and Low Ability Students on College Persistence. Final Report.
INSTITUTION	Minnesota Univ., Minneapolis.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-I-E-057
PUB DATE	Jul 73
GRANT	OEG-5-71-0032(509)
NOTE	525p.; Oversized document (actual pagecount is 421p.)
EDRS PRICE	MF-$0.65 HC-$19.74
DESCRIPTORS	*Academic Ability; Academic Achievement; Academic Performance; College Attendance; *College Students; *Dropouts; Individual Characteristics; *Persistence; *Personality; Sex Differences; Success Factors

ABSTRACT

The purpose of this investigation is twofold: (1) to study the effect of personality characteristics, identified at the beginning of the freshman year, on the college persistence of high, middle, and low ability men and women students; and (2) to describe women and men of varying ability in terms of certain academic variables. The study relates to the problem of college persistence and investigates two general hypotheses concerning the influence of the nonintellective variables of personality characteristics on the criterion status of graduate and nongraduate students from the University of Minnesota. The study takes into account evidence which indicates that: (1) nonintellective factors such as personality characteristics are important determinants of college success; (2) nonintellective correlates of college performance are specifically tied to ability levels; and (3) sex interacts with factors affecting academic performance. Results point to various significant differences which are hypothesized as interacting with the differential reward systems and expectations of institution and society for men and women. (Author/WSK)

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FINAL REPORT

Project No. 1-E-057
Grant No. OEG-5-71-0032 (509)

THE EFFECT OF PERSONALITY CHARACTERISTICS OF HIGH, MIDDLE, AND LOW ABILITY STUDENTS ON COLLEGE PERSISTENCE

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July 1973

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Office of Education
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The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

ACKNOWLEDGEMENTS

This investigation and the final report could not have been completed without the patience, hard work, and teeth-grinding persistence of numerous people.

One group of people are the research assistants who at one time or another worked on the project. These include: Lynn Bechdolt, Lynn Wutschke, Rick Romer, and especially Judy Hollander who organized and pulled together many loose ends including the research and writing of the literature review.

Another group are the programmers who diligently programmed, and reprogrammed, and re-reprogrammed: Jim Haynes, Cathy Yamoor, and ultimately Rick Matthews who not only devised a computer program for the Z-test of proportions but finally "got it all together".

Two others are my secretary, Marsha Hergert, as well as Pam Thielke, MSC receptionist, who, while smiling most of the time, typed their fingers to the bone.

And there is Theda Hagenah, SCB Director, who initially allowed me the time and space to begin this study.

TABLE OF CONTENTS

PAGE

LIST OF TABLES vi

LIST OF FIGURES. x

SUMMARY. xiii

CHAPTER

I. PURPOSE, PROBLEM, AND BACKGROUND. 1

II. MEASURED PERSONALITY CHARACTERISTICS AND ACADEMIC PERSISTENCE AND ACHIEVEMENT 13

Section I: Measured Personality Characteristics and Persistence in College. 14

Section II. Measured Personality Characteristics and Academic Achievement. 30

III. THE PROCEDURES. 58

A. Sample. 58

B. Admissions Criteria: ACE and HSR. 59

C. Definition of Academic Ability Levels 63

D. Criterion Status: Graduate--Nongraduate 64

E. The Nonintellective Variables 66

F. The Hypotheses. 79

G. Academic Information. 80

H. Summary of the Procedures 85

CHAPTER PAGE

IV. ANALYSES 87
    A. Electronic Data Processing Procedures. 87
    B. Tests of the Major Hypotheses: MMPI Analyses 87
    C. Descriptive Analyses 93
    D. Summary. 96

V. RESULTS: DESCRIPTIVE ANALYSES--ACADEMIC VARIABLES. 98
    A. Persistence in College 98
    B. ACE. 99
    C. HSR. 100
    D. Number of Quarters of Academic Attendance. 101
    E. College of Enrollment. 106
    F. Major Fields of Study. 109
    G. Degrees Earned 124
    H. Grade Point Average. 127
    I. Honors 130
    J. Contact with the Student Counseling Bureau 132
    K. Summary: Descriptive Academic Variables Results. . . . 134

VI. RESULTS: PERSONALITY CHARACTERISTICS 143
    A. Mean MMPI SCORES 143
        1. Women and Men Graduates. 143
        2. Women and Men Nongraduates 152
    B. Single Scale MMPI Analyses 161
        1. Women and Men Graduates. 161
        2. Women and Men Nongraduates 197

CHAPTER PAGE

VII. DISCUSSION AND IMPLICATIONS. 237
    A. Personality Characteristics--Graduates 237
    B. Personality Characteristics--Nongraduates. 253
    C. General Discussion 261
    D. Conclusions and Recommendations. 272

REFERENCES. 273
APPENDIX A. 287
APPENDIX B. 305
APPENDIX C. 311
APPENDIX D. 361

LIST OF TABLES

TABLE PAGE

1. Number of Women and Men Who Enrolled in the College of Liberal Arts (CLA) (University of Minnesota) as New Freshmen During the Fall Quarter of the Years 1950 through 1958 288

2. Edition of the ACE Administered in the Minnesota State-Wide Testing Program: 1949 through 1957 289

3. American Council of Education Psychological Examination (ACE) Mean, Median, Standard Deviation, and Variance for College of Liberal Arts Women and Men Freshmen 290

4. High School Percentile Rank (HSR) Mean, Median, Standard Deviation, and Variance for College of Liberal Arts Women and Men Freshmen 291

5. ACE and HSR Cutoff Points (Percentiles) Used to Define High, Middle and Low Ability Groups. 292

6. Frequency and Percentage of Women and Men Classified as High, Middle and Low Ability 293

7. Frequency and Percentage of ACE Percentile Scores for CLA Freshman Women and Men of Varying Ability. 294

8. Frequency and Percentage of High School Ranks for CLA Freshman Women and Men of Varying Ability. 296

9. ACE and HSR Mean and Standard Deviation Scores for CLA Freshmen Women and Men of Varying Ability 302

10. Number of Years Available Within Which to Graduate for CLA Freshmen Who Entered 1950-58 303

11. Frequency and Percentage of Women and Men Who Completed the MMPI During Freshman Orientation 304

12. MMPI Raw Cutting Scores Used for the T Score Categories of High, Middle, and Low for the Men 308

13. MMPI Raw Cutting Scores Used for the T Score Categories of High, Middle, and Low for the Women 309

14. Persistence of High, Middle, and Low Ability Women at the University of Minnesota: Frequency and Percentage. . . . 312

TABLES PAGE

15. Persistence of High, Middle, and Low Ability Men at the University of Minnesota: Frequency and Percentage. . . . 313

16. ACE Mean and Standard Deviation Percentile Scores for Women and Men Graduates and Nongraduates of Varying Ability. 314

17. HSR Mean and Standard Deviation for Women and Men Graduates and Nongraduates of Varying Ability. 315

18. Frequency and Percentage of Quarters in Attendance at the University of Minnesota for the Women and Men. 316

19. Mean and Standard Deviation Number of Quarters in Attendance at the University of Minnesota for the Women and Men Graduates and Nongraduates of Varying Ability. . 323

20. College of Enrollment at the University of Minnesota for Women and Men Graduates and Nongraduates of Varying Ability. 324

21. General Major Fields of Women and Men Graduates and Nongraduates of Varying Ability. 326

22. Baccaluareate Degrees Earned at the University of Minnesota by Women and Men Graduates of Varying Ability. 333

23. One- and Two-Year Degrees/Certificates Earned at the University of Minnesota by Women and Men Nongraduates of Varying Ability. 338

24. Frequency and Percentage of Cumulative Grade Point Averages (GPA) for Women and Men Graduates and Nongraduates of Varying Ability. 340

25. Frequency and Percentage of Cumulative Grade Point Averages (GPA) for Women and Men Graduates and Nongraduates of Varying Ability. 349

26. Cumulative Grade Point Averages (GPA) Means and Standard Deviations for Women and Men Graduates of Varying Ability 351

27. Cumulative Grade Point Averages (GPA) Means and Standard Deviations for Women and Men Nongraduates of Varying Ability. 352

TABLE PAGE

28. Frequency and Percentage of Kinds of Honors Earned at Graduation from the University of Minnesota for Women and Men Graduates of Varying Ability 357

29. Frequency and Percentage of Graduation with Honors for Women and Men Graduates of Varying Ability 358

30. Contact with the Student Counseling Bureau (University of Minnesota) for Women and Men Graduates of Varying Ability. 359

31. Contact with the Student Counseling Bureau (University of Minnesota) for Women and Men Nongraduates of Varying Ability. 360

32. Minnesota Multiphasic Personality Inventory (MMPI) Mean Scores and Standard Deviations for Women and Men Graduates of Varying Ability 362

33. Summary of Differences in MMPI Mean T Scores for Women Graduates Compared to Men Graduates of Varying Ability . 150

34. Summary of Differences in MMPI T Scores for Men Graduates Compared to Women Graduates of Varying Ability. 151

35. Minnesota Multiphasic Personality Inventory (MMPI) Mean Scores and Standard Deviations for Women and Men Nongraduates of Varying Ability. 373

36. Summary of Differences in MMPI Mean T Scores for Women Nongraduates as Compared to Men Nongraduates of Varying Ability. 159

37. Summary of Differences in MMPI T Scores for Men Nongraduates as Compared to Women Nongraduates of Varying Ability . . 160

38. Frequency and Percentage Scoring Within the T Score Categories on the MMPI Scales for the Women and Men Graduates of High, Middle, and Low Ability 384

39. Tests of Differences in Proportions, and Frequency and Percentage Scoring Within the T Score Categories for MMPI Scales L, K. 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 for the Women and Men Graduates of High, Middle, and Low . . Ability 389

40. MMPI T Score Categories Within Which the Women and Men Graduates of Varying Ability Had Significantly Higher Proportions 174

TABLES PAGE

41. Frequency and Percentage Scoring Within the T Score Categories on the MMPI Scales for the Women and Men Nongraduates of High, Middle, and Low Ability. 395

42. Tests of Differences in Proportion, and Frequency and Percentage Scoring Within the T Score Categories for MMPI Scales L, F, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 for the Women and Men Nongraduates of High, Middle, and low Ability. 400

43. MMPI T Score Categories Within Which the Women and Men Nongraduates of Varying Ability Had Significantly Higher Proportions 212

LIST OF FIGURES

FIGURE PAGE

1. Frequency Polygons of ACE Percentile Scores for Women of High, Middle, and Low Ability. 298

2. Frequency Polygons of ACE Percentile Scores for Men of High, Middle, and Low Ability 299

3. Frequency Polygons of High School Percentile Ranks (HSR) for Women of High, Middle, and Low Ability. 300

4. Frequency Polygons of High School Percentile Ranks (HSR) for Men of High, Middle, and Low Ability. 301

5. Frequency Polygons of Cumulative Grade Point Averages for Women Graduates of High, Middle, and Low Ability . . 353

6. Frequency Polygons of Cumulative Grade Point Averages for Women Nongraduates of High, Middle, and Low Ability. 354

7. Frequency Polygons of Cumulative Grade Point Averages for Men Graduates of High, Middle, and Low Ability . . . 355

8. Frequency Polygons of Cumulative Grade Point Average for Men Nongraduates of High, Middle, and Low Ability. 356

9. Freshman Mean MMPI Profile for High Ability Women Graduates. 367

10. Freshman Mean MMPI Profile for Middle Ability Women Graduates. 368

11. Freshman Mean MMPI Profile for Low Ability Women Graduates. 369

12. Freshman Mean MMPI Profile for High Ability Men Graduates. 370

13. Freshman Mean MMPI Profile for Middle Ability Men Graduates. 371

FIGURE PAGE

14. Freshman Mean MMPI Profile for Low Ability Men Graduates. 372

15. Freshman Mean MMPI Profile for High Ability Women Nongraduates 378

16. Freshman Mean MMPI Profile for Middle Ability Women Nongraduates 379

17. Freshman Mean MMPI Profile for Low Ability Women Nongraduates 380

18. Freshman Mean MMPI Profile for High Ability Men Nongraduates 381

19. Freshman Mean MMPI Profile for Middle Ability Men Nongraduates 382

20. Freshman Mean MMPI Profile for Low Ability Men Nongraduates 383

21. MMPI Scales and T Score Categories on which High Ability Women Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Graduates 188

22. MMPI Scales and T Score Categories on which Middle Ability Women Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Graduates. 189

23. MMPI Scales and T Score Categories on which Low Ability Women Graduates Scored Significantly More Frequently Than High, Middle, and Low Ability Men Graduates 190

24. MMPI Scales and T Score Categories on which High Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates. 191

25. MMPI Scales and T Score Categories on which Middle Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates. 192

26. MMPI Scales and T Score Categories on which Low Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates . . . 193

FIGURE PAGE

27. MMPI Scales and T Score Categories on which Varying Ability Women Graduates Scored Significantly More Frequently than Varying Ability Men Graduates. . . 195

28. MMPI Scales and T Score Categories on which Varying Ability Men Graduates Scored Significantly More Frequently than Varying Ability Women Graduates 196

29. MMPI Scales and T Score Categories on which High Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates. 227

30. MMPI Scales and T Score Categories on which Middle Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates. 228

31. MMPI Scales and T Score Categories on which Low Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates. 229

32. MMPI Scales and T Score Categories on which High Ability Men Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Nongraduates. 230

33. MMPI Scales and T Score Categories on which Middle Ability Men Nongraduates Scored Significantly More Frequently than High, Middle and Low Ability Women Nongraduates. 231

34. MMPI Scales and T Score Categories on which Low Ability Men Nongraduates Scored Significantly More Frequently Than High, Middle, and Low Ability Women Nongraduates. . 232

35. MMPI Scales and T Score Categories on which Women Nongraduates of Varying Ability Scored Significantly More Frequently than Men Nongraduates of Vary Ability . 235

36. MMPI Scales and T Score Categories on which Men Nongraduates of Varying Ability Scored Significantly More Frequently than Women Nongraduates of Varying Ability 236

SUMMARY

The purpose of this investigation was twofold: (1) to study the effect of personality characteristics identified at the beginning of the freshman year on the college persistence of high, middle and low ability women and men students; and (2) to describe women and men of varying ability in terms of certain academic variables.

The reason for the study was related to the problem of college persistence. Many students drop out of college. No simple reason exists why some students of high, middle or low ability withdraw from college and why others remain; and the characteristics which distinguish those who remain and those who withdraw are not clear. Evidence is increasing, however, that nonintellective factors are a necessary ingredient in academic success, and are important avenues for research.

This study took into account evidence which indicated that: (1) nonintellective factors, such as personality characteristics, are important determinants of college success; (2) nonintellective correlates of college performance are specifically tied to ability levels; and (3) sex interacts with factors affecting academic performance.

Personality characteristics were focused on in order to understand how they relate to the actual output of the educational process--the continuation or noncontinuation of varying ability women and men students.

The subjects included 4,633 women and 5,658 men who entered the U of M College of Liberal Arts as new freshmen in the fall quarter of the years 1950-1958, who had an ACE score and HSR at the time of admission, and who had a U of M undergraduate transcript of courses and grades.

Each woman and man was assigned to a high, middle, or low academic ability group on the basis of her or his total score on the ACE and the HSR.

The criterion status, or dependent variable, in the investigation was "graduate" or "nongraduate". Criteria for the "Graduate" status were: (a) The completion of all requirements for a baccalaureate degree from the University of Minnesota; and (b) The specification on the official record that a baccalaureate degree was in fact conferred by the University of Minnesota. Criteria for the "Nongraduate" status were absence of these graduate criteria.

The nonintellective independent variables were 13 personality characteristics defined as those measured by the Minnesota Multiphasic Personality Inventory (MMPI). Subjects completed the MMPI during freshman orientation. Of the 4,633 women, 69.0% (3,197) had completed the MMPI and had valid profiles; and of the 5,658 men, 58.2% (3,295).

The investigation explored two general hypotheses concerning the influence of the nonintellective variables of personality characteristics on the criterion status of Graduate or Nongraduate from the University of Minnesota. The personality characteristics do not differ between: (1) varying ability women and men Graduates; and (2) varying ability women and men Nongraduates.

Additional academic information was included in this study to provide a more comprehensive picture of the subject in terms of their academic careers at the University of Minnesota: (1) Grade point average; (2) Major field; (3) College; (4) Degree; (5) Honors; (6) Number of quarters of academic attendance; and (7) Contact with the Counseling Bureau.

Analyses. Mean difference tests, chi-square analyses, and tests of differences between proportions were performed on the MMPI data in order to test the major hypotheses of no difference in personality characteristics between women and men college graduates and nongraduates of varying ability. Descriptive analyses also were performed for the academic variables.

Results: Graduation with a baccalaureate degree was achieved by less than half (2,169) of the 4,633 women and by more than half (3,151) of the 5,658 men (46.8% and 55.7%, respectively). Among the High ability, more women than men graduated (16.3% and 11.3%, respectively). However, more men than women of Middle ability (24.9% vs. 17.5%) and of Low ability (19.5% vs. 13.0%) graduated.

Over half (2,464) of the 4,633 women withdrew from the U of M in contrast to less than half (2,507) of the 5,658 men (53.2% and 49.3%, respectively). More women than men of High ability withdrew (11.0% vs. 3.4%); and more Middle ability women than men withdrew (21.8% vs. 17.7%). However, more Low ability men than women withdrew (23.2% vs. 20.4%).

The women and men of High, Middle, and Low ability differed in their colleges of enrollment, major fields of study, and degrees earned. The men also took longer to graduate and had more contact with the Counseling Bureau. The women achieved higher grades and more frequently graduated with honors.

Significant differences in personality characteristics between the women and men Graduates of High, Middle, and Low ability and between women and men Nongraduates of High, Middle, and Low ability were found on all 13 MMPI scales. The specific differences depended upon the specific ability groups being compared. However, these differences tended to be consistent both for the men Graduates and Nongraduates and the women Graduates and Nongraduates. In general, the men had higher scores on scales F, 1, 2, 3, 4, 5, 7, 8, and 9; lower scores on scales L and K; and both higher and lower scores on scale 10. The women had higher scores on scales L, K, 6, and 10; and lower scores on scales F, 1, 2, 3, 4, 5, 7, 8, and 9.

These differences were hypothesized to interact with the differential reward systems and expectations of institution and of society for women and men causing higher achievement but less persistence to a degree for women, and lower achievement but more persistence to a degree for men.

Recommendations were made for further research with different methodologies.

CHAPTER I

PURPOSE, PROBLEM, AND BACKGROUND

This chapter states the purpose of the study and the problem underlying the purpose. The background of the problem is discussed as well as the focus and questions investigated.

A. PURPOSE

The purpose of this investigation was twofold. The major purpose was to examine whether or not the persistence of women and men of varying ability toward a baccalaureate degree was related to their personality characteristics as measured at the beginning of their collegiate freshman year. More specifically, the primary question asked whether or not women and men of high, middle, and low ability who completed a baccalaureate degree differed significantly in personality characteristics from women and men of high, middle and low ability who did not complete a baccalaureate degree; and whether or not these nonintellective variables could be identified at the beginning of the freshman year in college.

A second purpose of the investigation was to describe women and men of varying ability in terms of academic variables of length of time in college, grade point average, colleges of enrollment, major fields of study, degrees conferred, honors conferred, and contact with the Student Counseling Bureau.

B. PROBLEM

The reason for the study was related to the problem of college persistence. Many students drop out of college. Of all students who enter college, about 45 percent complete a degree program, approximately 45 percent withdraw before completion, and the remaining 10 percent are failed for poor scholarship (Darley, 1962). College and university officials do not anticipate that all students who begin college will graduate, but the characteristics which distinguish those who remain and those who withdraw are not clear. The general belief, however, is that students with high aptitude test scores will ordinarily complete the degree requirements in contrast to students with low aptitude scores (Slater, 1957). Nevertheless, even this conclusion is clouded by the observation that a relatively high proportion of gifted students who attend American universities and colleges leave before advancing their education to the point of an undergraduate degree.

Intellective factors are obvious factors related to college success. Admission policies in many colleges and universities imply that it is possible to predict graduation from college on the basis of such measures as high school rank and scholastic aptitude scores. These two measures have been used mainly for the purpose of college admission and prediction of first quarter college grades. But predictions based upon these measures have been far from perfect and, indeed, typically account for less than half the variance in academic performance. Moreover, aptitude tests and high school ranks are very dubious predictors of college graduation or how long a student will remain in college (Goodstein & Heilbraun, 1962; Lavin, 1965; McFarlane, 1957; Munger, 1956; Travers, 1949).

The advance (before college) identification of students who may drop out of college is one of the perplexing problems faced by educators and psychologists. While the prediction of scholastic success has been a perennial problem for educators and psychologists, they have paid far too little attention to nonintellective factors in college success and especially in college persistence. This lack of attention is particularly notable with regard to women and men students of varying ability levels.

Nevertheless, evidence is increasing that: (1) nonintellective factors, such as personality characteristics, are important determinants of college success; (2) nonintellective correlates of college performance are specifically tied to ability levels; and (3) sex interacts with factors affecting academic performance. (See section C of this chapter.)

The talents and interests of every individual are not necessarily best served by a formal college education. For some, college may not present the immediate challenge they are seeking, and other types of experiences or training may be more fruitful. On the other hand, for a large group within our society, a college education provides the foundation for a rewarding and successful life. Each person who so desires it should achieve the fullest educational development of which she or he is capable, as this is advantageous both to the individual and to society. Through higher educational achievement individuals can reach their full potential in social, cultural, and economic spheres. Such education is becoming increasingly imperative in a world of growing complexity and explosive extension of knowledge (Bridgeman, 1961; Slater, 1956; Slater, 1957; Women's Bureau, 1965).

To identify the internal and external factors that help or hinder the fruition of talent and to measure the degree to which these factors are influential seem to be among the major educational problems today. Since education is an important factor in an individual's development and in her or his cultural, social, and economic life, and since the successful completion of undergraduate study is a prerequisite to study in most professional fields, an examination of the factors which affect the persistence of high, middle, and low ability women and men in their undergraduate college education is of importance.

C. BACKGROUND

While little is known of those factors which lead students to remain in college and to pursue their programs productively, it has become clear that nonintellective factors are more critical than was formerly believed.

Inherent in the higher educational system is the belief that an individual can earn a degree--if she or he "has what it takes." Nevertheless, many young people seem to find academic work both difficult and disagreeable (Jencks & Riesman, 1968). Many young people will revise or lower their aspirations or withdraw from college to avoid college failure. They do not have to be flunked out of college and told never to return. If they are regularly told they are doing poor work, and if others continuously excel in a competitive atmosphere which colleges create, an appreciable fraction of those not excelling will quit the game voluntarily. Both the dropout and her or his college can then rationalize the departure as a matter of personal choice. The college may say she or he had the "wrong attitudes" or the "wrong personality make-up" for academic success. The dropout may have valuable talents that the college repressed or ignored; and even if she or he feels frustrated later and is resentful about that which occurred, the ensuing anger may be directed against herself or himself rather than against "the system." The individual may wonder why she or he doesn't have the characteristics apparently necessary in the perseverance and academic drudgery to complete a degree. The individual's morale or confidence is lowered. She or he suspects that success is not an achievement of demoralized or hopeless individuals. And yet she or he sees that those who do achieve are not necessarily the more cheerful or optimistic or carefree. They may be suffering and have many moments of despair. They may lack self-assurance in many dimensions of their lives. But deep within them they seem to have a hard core of conviction and self-trust that makes their achievement possible.

The questions being asked are concerned with what Jencks and Riesman (1968) have observed as a selective withdrawal and ejection from the higher educational system. The basic question is, what is involved in this selective system of withdrawal or continuation? Do the intelligent but docile students find college or "schooling" relatively congenial and therefore stay enrolled, while the less intelligent and more rebellious find it intolerable and therefore withdraw? Is the reverse true--do the less intelligent but docile students find college congenial and therefore stay enrolled, while the intelligent but more rebellious find college intolerable and withdraw?

No simple explanation apparently exists as to why some students of high, middle, or low ability withdraw from college and why others remain. While intellective factors are obviously related to college success, evidence is increasing that non-intellective factors are a necessary ingredient in such success (for example, see Brown, 1953; Brown, 1960; Chambers, 1925; Gardner, 1961; Goodstein & Heilbrun, 1962; Hinkleman 1929; Holland, 1959; Jencks & Riesman, 1968; Jensen, 1958; Layton, Sandeen, & Baker, 1971; Lightfoot, 1951; Terman, 1943). Some investigators, finding that scholastic aptitude tests and other intellectual measures were not perfect predictors, attempted to supplement these measures with measures of nonintellective factors (Brown, 1953; Brown, 1960; Chambers, 1925; Goodstein & Heilbrun, 1962; Hinkleman, 1929; Holland, 1959; Jensen 1958; Lightfoot, 1951; Terman, 1943). Their investigations pointed out that nonintellective factors are an additional relevant source of variance in the assessment of academic success and are important determinants of college success. Among the nonintellective variables dealt with in these investigations was the personal make-up of the individual. These personal factors have been variably defined, depending upon the study, as including motivation, achievement motivation, self-concept, self-awareness, interests, indifference, emotional adjustment, and personality characteristics.

Personality characteristics, including self-concept and emotional adjustment, have been found to affect achievement in an indirect way by affecting the degree to which an individual uses her or his own abilities (Centi, 1961; Stagner, 1933). Different personality characteristics also appear to have greater impact at different stages of the educational process (Gough, 1953). Personal attitudes of indifference and disinterest also are factors which may contribute to a person's lack of success (Berdie, 1955; Berdie, Layton, Hagenah, Swanson, & Merwin, 1962).

Evidence also is accumulating that nonintellectual correlates of college performance may be specifically tied to ability levels, and that these relationships are masked by analyses which fail to consider ability levels. Some investigators have shown that intellectual factors are significantly related to college success when the influence of academic ability is statistically removed or controlled, and that the nature of these relationships depends upon the general ability level of the group being studied (Goodstein & Heilbrun, 1962; Horrall, 1957; Munger 1956; Munger & Goeckerman, 1955). For example, personality traits which enhance or interfere with academic success in low ability students seem to differ from enhancing or interfering traits in middle or high ability students. Consequently, when heterogeneous ability groups are studied and levels of ability are ignored as variables, the true relationships between nonintellective factors and achievement may be concealed. The study of individuals at similar levels of scholastic ability is of importance, then, when investigating nonintellectual correlates of academic success. With the variance in aptitude thus controlled, the nonintellectual correlates of academic performance become more apparent. Unfortunately, of the studies which have been concerned with the relationship of nonintellective factors to academic success, the majority have been focused on heterogeneous ability groups rather than on homogeneous ability groups.

Unfortunately, research in academic success has too often failed to take into consideration the sex of the student (Shaw, 1961; Capretta, Jones, Siegel, & Siegel, 1963; Todd, Terrell, & Frank, 1962). Averages that include performance by both women and men often have obscured facts about each. Studies in academic success which have considered sex differences have provided some evidence that sex interacts with factors affecting academic achievement (Shaw & Grubb, 1958; Summerskill & Darling, 1955; Todd et. al., 1962).

The extent to which persistence and college performance is educationally determined is also just beginning to be understood. Whether or not young people are eager to learn appears to be influenced by the kind of environment provided for them. In other words, individual performance may vary according to the capacity of the environment to evoke it (Gardner, 1961; Jencks & Riesman, 1968). However, the complexities of personality and motivational factors within the individual as they operate within the higher educational environment are still a long way from being understood. Nevertheless, it is known from research such as that conducted by Katz (1967) that: (1) The academic and intellectual offerings of the college do not mesh with the motivations of many students. (Both adequate learning and personal involvement in the process of intellectual inquiry suffer as a result.) (2) Many students do not learn to engage their reasoning capacities in solving problems they face in their own development. (3) The college years do not bring sufficient opportunity to develop the nonintellective facets of their character for many students.

As essential question in higher education concerns what the basic purpose of an educational institution is and what its characteristics should be. What is meant by a university or college as regards the quality of the students, the nature of the subjects studied, and the kind of work that goes on within its walls? In the United States the belief is held that in addition to the advancement of knowledge and the development of specialized skills, an educational institution has the duty to foster the intellect and personality of its students in a broader way. Its duty is not simply to assist women and men to live, but to live well. "It must teach people not only to think about chemistry or law, but to think more effectively, more logically--if you like, more honestly--about anything at all" (Lord James, 1964).

Axelrod (1964) has noted that the goals of undergraduate education, however formulated, constitute an interlocking series of desired changes in students. Two distinct categories of goals appear to exist. One category may be stated as either desired developments in a student's personality, character, values, attitudes, sensibilities (to nature, art, music), etc.; or as changes in overt behaviors including the student's relationship to friends, the other sex, family, and community, including reactions to problems at the national and global level on which the student is expected to make decisions. Secondly, most undergraduate programs list as a goal the development of the student's ability in a particular field or area, as a means both of gaining a livelihood and also, possibly, of contributing to the welfare of mankind.

The curriculum is a key instructional means which an institution uses to fulfill its goals. Axelrod (1964) noted, however, that some of the most influential aspects of the curriculum may depend on the personalities of student and professor, and their individual predilections; and that these personality or noncurricular aspects or means of education are part and parcel of the instructional program.

Performance in college has increasingly come to involve various characteristics of personality and temperament, often outweighing the importance of particular skills or special educational backgrounds. These characteristics of personality may, for example, affect performance by determining the degree to which an individual uses her or his own abilities (Centi, 1961; Faunce, 1968; Stagner, 1933). The characteristics which are involved may vary within given levels of ability (Goodstein & Heilbrun, 1962; Horrall, 1957; Munger, 1956; Munger & Goeckerman, 1955), as well as by sex (Shaw & Grubb, 1958; Summerskill & Darling, 1955; Todd et. al., 1962), so that personality traits which enhance or interfere with academic success in low ability women or men students are not the same as those in middle or high ability women or men students.

Thus, personality characteristics can be important influences upon success in college. They play a part in determining the kinds of adjustment problems which a student will encounter and the role he will play in an educational setting. Women and men students of varying ability and personality may be happy or unhappy, effective or ineffective in their educational work depending upon the ease with which they make the modifications which educational work requires in their personalities, or alter the role requirements to suit their personalities (Super & Crites, 1962).

Gardner (1961) points out that extreme emphasis on certain kinds of performance in an educational institution may foster an atmosphere of striving that results in unfair treatment of the less able, or less vigorous, or less aggressive; it may injure those whose temperaments make them unwilling to engage in such performance rivalries; it may penalize those whose undeniable abilities and potentialities do not add up to the kinds of performance that the educational institution chooses to reward. To an individual lacking in the qualities reinforced by an educational system, the system can be fraught with fear or danger. Lack of ability, lack of energy, lack of aggressiveness, lack of conformity, or lack of whatever is deemed necessary in that educational environment can lead to frustration and failure. Obsessive ambition can lead to emotional breakdown. Unrealistic ambitions can lead to bitter defeats. Katz (1967) in reviewing the results of his research of entering freshmen classes at two universities and their continuation through four college years, states:

> The picture that emerges is that of a wide variety of patterns in which individuals react and develop during the college years. The college environment is a highly controlling one and it is so to the point of stress for many students, but some individuals have the psychological equipment not to let the formal or informal requirements of the structure interfere with their own individual development, and they can utilize both the opportunities and even the obstacles of their environment for the purpose of their own growth. At the other extremes are those whose needs for passivity and for being told what to do have become so ego-syntonic that the conformity of orderly security does not make them experience requirements as either stressful or inhibiting. In between are the bulk of people whose lives never reach an adequate expression of their potential because they are handicapped by (1) inadequate self-awareness and inadequate self-assertion and (2) an environment whose demands and constraints are both not sufficiently elicitive of their potential and too thwarting to their spontaneity.

People are not equal in their native abilities nor in their motivations; and it follows that they will not be equal in their achievements. But, as Gardner (1961) notes, that is why "equality of opportunity" has been given such a central role in our social philosophy. "We may not all hit home runs," the saying goes, "but every person should have their chance at bat."

At the same time, as Gardner (1961) points out, the idea of equality of opportunity is not as simple as it sounds. In practice it means an equal chance to compete within the framework of goals and the structure of rules established by a particular society or a particular educational institution; and this tends to favor certain kinds of people with certain kinds of abilities. The educational institution may insure a student equality of opportunity with every other student, but it can only place before her or him (and before all other students) the range of opportunities available in that institution. If an individual's undiscovered talent is for chariot racing or if an individual has the capacity to see visions and the educational system does not provide opportunities to develop these talents, then that individual does not have equal opportunity in that educational environment.

It should be noted that it is not easy for believers in democracy to dwell on the differences in capacity between people. Gardner (1961) notes that even the most casual glance at our educational system will reveal the great reluctance to put labels on differences in general capacity. Consider the broad interpretation given to the phrase "college education." When young people are graduated from high school, those going on to college are discussed as though they were a homogeneous lot, all headed for a similar experience. But the truth is that they are quietly sorted into different paths. Democratic philosophy has tended to ignore differences in capacity, when possible, and to belittle them where it could not ignore them. And it has some grounds for doing so: the enemies of democracy have often cited the unequal capacities of people as an excuse for institutions which violate our most deeply held beliefs. But extreme equalitarianism--or as Gardner (1961) would prefer to say, "equalitarianism wrongly conceived"--which ignores differences in native capacity, achievement and personality, has served neither democracy nor the educational system well. Carried far enough, it means the lopping off of any heads which can come above dead level. It means committee rule, the individual smothered by the group. And it means "the end of that striving for excellence which has produced mankind's greatest achievements" (Gardner, 1961).

Gardner also notes that in addition to such features as equal opportunity and equalitarianism in our society and education system, ours is one of the few societies in the history of the world in which performance is a primary determinant of status. What the individual can "deliver" in the way of performance is a major factor in how far she or he can rise in the world. In a system in which performance is the chief determinant of status, the individual becomes increasingly concerned about her or his capacity. And in our society the individual's future depends to an unprecedented degree on that individual's own gifts and capacities. There are all kinds of individual capacity. But for complex reasons, Americans see appraisals of "intelligence," however defined, as total judgments on the individual and as central to her or his self-esteem (Gardner, 1961).

A feature of our society in dealing with levels of ability is what Gardner (1961) calls the "principle of multiple chances." It is believed that the young person should have many successive opportunities to discover herself or himself. And any final closing of the door on the individual's chances is postponed as long as possible. It is a unique feature of our system that the "late bloomer" may dawdle or occupy herself or himself with other than educational objectives until as late as eighteen or nineteen years of age (roughly first or second year of college) and still not only obtain a college education but go on to become a professional person or leading physician. It is rare, however, for aimless young women or men with no interest in studies to turn into leading physicians.

It is not only the late bloomer who benefits by the principle of multiple chances. The social and cultural influences of the home as well as the personal make-up of the individual are now known to have a good deal to do with both motivation and performance in school and in college. The individual growing up in a home barren of educational or cultural influences, or who is of a certain kind of temperament or predilection may require a longer exposure and/or different kinds of exposure to the educational environment before she or he is "awakened."

The practice, followed by many of our public universities, of accepting all or almost all high school graduates who apply and then weeding them out in large numbers during the freshman year is partly a response to political pressures. But, as Gardner (1961) notes, it is warmly defended by many in terms of the principle of multiple chances. In this defense it is argued that it is better to let a student try and fail--and in failing discover her or his own inadequacy--than to tell a student she or he is not good enough to try. The symbolic importance which college education has gained in our society requires that the young person be given one further try. And, it is further argued, allowing young people to discover their own inadequacies is a defensible social or educational strategy.

Those who support this argument, however, fail to understand the importance and significance of the kind of role that the educational institution should perform in this context. That is, rather than create situations in which a student tries to discover her or his inadequacies in whatever sphere and then "weeds herself or himself out"--which is the function of the institution in their argument--the institution should aid and stimulate the student to discover her or his strengths in both the personal and ability realms, and the institution should promote ways of capitalizing on these strengths. In addition, the institution should provide ways and means of helping a student to face, overcome, and resolve her or his inadequacies. The planning and implementation of such functions by the institution should be done within the context of the student's personal make-up and needs as well as her or his native abilities.

This type of institutional involvement and responsibility does not mean that the needs and expectations of the institution are ignored. But needs and expectations of the institution are only one side of the equation that defines curriculum, programming, faculty-student relationships or, in effect, the college environment. The other side of the equation contains the needs, expectations, and capacities of the entering students. Unless the student side of the equation is taken into account, we will continue to have ineffective educational institutions; and the sorting out of individuals according to the self-sort strategy outlined above will continue to be a most delicate process with painful consequences. The loser in this self-sort believes that the reason for her or his lowly status is that she or he is not capable of better performance. The consequences of such a judgment about herself or himself and her or his capacities, among other things, contribute to a lowering of the individual's self-esteem and a disintegration in morale. And, in the words of John Gardner (1961), "no morale, no excellence." Not only are the individual's attitudes a corrosive influence on her or his morale, but they make it virtually certain that she or he will never achieve the kind of excellence that is within the individual's reach. Gardner believes that there is a kind of excellence within the reach of every person and that our kind of society demands the maximum development of individual potentialities at every level of ability. In short, Gardner rejects the notion that excellence is something that can only be experienced in the most rarified strata of higher education. It may be experienced at every level and in every kind of higher education. He points out that the insolent and degrading assumption must never be made that young people unfitted for the most demanding fields of intellectual endeavor are incapable of rigorous attention to other kinds of standards. It is an appalling error to assume that young women and men incapable of the highest standards of intellectual excellence are incapable of any standards whatsoever, and can properly be subjected to shoddy, slovenly, and trashy educational fare. College should be an enriching experience, and achievement should not be confused with human worth. "Human dignity and worth should be assessed only in terms of those qualities of mind and spirit that are within the reach of every human being" (Gardner, 1961). What is really being sought is what James Conant had in mind when he said that American people are concerned not only for equality of opportunity but for equality of respect. Every human being wishes to be respected regardless of her or his ability.

The chief instrument devised to further the ideal of individual fulfillment is the educational system. And yet, in educational institutions today, large numbers of young people never fulfill their potential. The educational environment may not be such as to stimulate such fulfillment, or it may actually be such as to stunt growth. Apparently, learning for learning's sake isn't enough.

Education in the formal sense is only a part of the society's larger task of abetting the individual's intellectual and emotional growth. Gardner (1961) believes that "what we must reach for is a conception of perpetual self-discovering, perpetual reshaping to realize one's best self, to be the person one could be." This conception not only includes the intellect, but the emotions, character, and personality. It involves not only the surface, but deeper layers of thought and action. It involves adaptability, creativeness, and vitality.

The traditional democratic invitation to each individual to achieve the best that is in her or him requires that each individual is provided with the particular kind of education which will benefit her or him. That is the only sense in which equality of opportunity can mean anything. The good educational institution is not one that ignores individual differences but one that deals with them wisely and humanely.

Perhaps it's best here to clear up some of the confusions involved in handling individual differences. Consider two statements from discussions of individual differences reported by Gardner (1961). The first is by a professor who says, "I regard it as undemocratic to treat so-called gifted students any differently from other students." The second statement is by another professor: "The goal of the American educational system is to enable every student to fulfill his potentialities, regardless of his race, creed, sex, social standing, or economic position."

The first statement implies that you must treat all students the same. The second implies that each must be enabled to fulfill her or his potential. The conflict between these two views emerges when it proves impossible to enable each to fulfill her or his potentialities without treating each differently.

It is the old dilemma of equalitarianism. In this case, the second speaker has stated the basic American creed and has left the path open for differential treatment, so that each student may achieve the best that is in her or him, while the first speaker has crossed off the possibility that each may achieve her or his best. He might be willing to have each achieve her or his best provided that it did not require differential treatment. But if it does require differential treatment, he will presumably deny the opportunity.

It is no sin to let low and average as well as brilliant students into college. It is a sin to let any substantial portion of them--low, average, or brilliant--drift through college without effort, without growth, without a goal. A proper expectation should be that every form of education be such as to stretch the individual to the utmost of her or his potentialities. And expectations must exist that each student is helped to strive for excellence in terms of the kind of excellence that is within this reach.

Educating everyone to the limit of her or his ability means a greatly increased emphasis upon individual differences, upon many kinds of talents, upon the varied ways in which individual potentialities may be realized. And it means taking into account other powerful ingredients which are of central importance in performance, these other ingredients being the personal make-up of the individual, her or his characteristics, and her or his temperament. Performance places heavy emphasis on precisely these attributes which are not measured by scholastic aptitude tests. All of these factors should carry due weight in any decisions which are made about the educational environment of an institution.

D. THE STUDY: FOCUS AND QUESTIONS

This study took into account evidence which indicated that: (1) nonintellective factors, such as personality characteristics, are important determinants of college success; (2) nonintellective correlates of college performance are specifically tied to ability levels; and (3) sex interacts with factors affecting academic performance.

Personality characteristics were focused on in order to understand how they relate to the actual output of the educational process--the continuation or noncontinuation of varying ability women and men students. Some of the questions for which this study sought answers concerned the output of the educational process--the continuation or noncontinuation of students:

1. Do students with only certain kinds of personality characteristics graduate from college while others with another set of personality traits withdraw from college?

2. Do these sets of personality characteristics associated with persistence or nonpersistence vary with the ability level of students, and/or with their sex?

3. Which personality characteristics are associated with continuation in college for women and men students of high, middle or low ability?

4. Which personality characteristics are associated with noncontinuation in college for women and men of high, middle or low ability?

E. SUMMARY

The purpose of this investigation was twofold: (1) to study the effect of personality characteristics identified at the beginning of the freshman year on the college persistence of high, middle and low ability women and men students; and (2) to describe women and men of varying ability in terms of certain academic variables.

The reason for the study was related to the problem of college persistence. Many students drop out of college. No simple reason exists why some students of high, middle or low ability withdraw from college and why others remain; and the characteristics which distinguish those who remain and those who withdraw are not clear. Evidence is increasing, however, that nonintellective factors are a necessary ingredient in academic success, and are important avenues for research.

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CHAPTER II

MEASURED PERSONALITY CHARACTERISTICS AND ACADEMIC PERSISTENCE AND ACHIEVEMENT[1]

Academic achievement and persistence in college have been the subjects of multitudinous investigations during the past decade. Psychologists are increasingly concerned with discovering the kinds of personality traits that foster academic achievement as well as the relationship between different kinds of personality characteristics to college attrition. This chapter includes a review of the available research literature dealing with such attempts to assess personality factors in college attrition and in college academic achievement. The literature review is divided into two basic sections: first, those studies concerned with a persistence in college as related to personality characteristics; and secondly, academic achievement as related to personality characteristics. Each of these sections, then, is separated into three parts: first, those studies dealing with female samples only, studies using only male samples, and finally those studies using both female and male subjects.

The studies included in this literature review have been done within the past ten and one-half years, from 1961-1972. Sources for the research literature used were the Psychological Abstracts and the Education Indexes. This review was concerned with actual research which used objective (non-projective) measures of personality characteristics in the experimental design.

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[1] Special thanks are due to Judy Hollander, research assistant, who wrote Section II, edited the entire Chapter II, and who did additional library search for the literature review. Thanks also are due to Lynn Wutschke, research assistant, who did the library search for and wrote Section I; and to Lynn Bechdolt, research assistant, who did the library research for Section II.

SECTION I: MEASURED PERSONALITY CHARACTERISTICS AND PERSISTENCE IN COLLEGE

This section is a review of available research literature on the measured personality characteristics of college students in relation to college persistence. These studies all vary in their definitions of dropouts. Some studies allow their subjects four or more years in which to graduate or withdraw, some allow one and one-half to three years, and other studies concern themselves with only freshman attrition. Some researchers assign their subjects to two categories: the dropout vs. the graduate (persister). Other researchers break down the dropouts into those who withdraw or who are dropped for academic reasons and those students who withdraw for nonacademic reasons. This review will include studies of each type mentioned above and will be divided into sections according to the definition of persister/dropout. Within each of these sections will be discussed those studies dealing with female samples only, studies using only male samples, and then studies using both female and male subjects. Ability differences, where explored, are also included.

A. FOUR OR MORE YEARS ALLOWANCE IN DEFINITION OF PERSISTER/DROPOUT

1. Women

Working with a sample of gifted, all female subjects, Faunce (1968) compared personality characteristics of 723 women who graduated and 526 women who did not graduate. Personality characteristics were defined as those measured by the MMPI. Assignment to graduate status was determined by (a) completion of all requirements for a baccalaureate degree from the University of Minnesota, and (b) specification on the official record that such a degree had been granted by the University. (Each woman had at least five years and two quarters in which to graduate.)

Results indicated that graduates had a statistically significantly higher mean score than nongraduates on the L scale. Nongraduates had significantly higher mean scores than did graduates on the Hy, Pd, and Ma scales. Graduates and nongraduates also differed significantly in score distributions on the following pairs of MMPI scales: L and K, L and Hy, L and Pd, L and Pt, L and Ma, K and Pd, K and Ma, D and Pd, D and Ma, Hy and Pd, Pd and Pa, Pd and Pt, Pd and Sc, Pd and Ma, Pd and Si, and Pt and Ma.

These results led Faunce to conclude that the major differences between graduate and nongraduate women were that the nongraduates as freshmen tended to show little insight into their own personality structures, to have difficulties with interpersonal relationships and impulse control, and to exhibit inner tensions; graduates, on the other hand, tended as freshmen to be insightful, integrated, and relatively free from tension. This is not to say that the graduates were "super-normal", with no problems. Graduates were probably less troubled by personal problems and were able to handle more effectively those problems which did occur.

Another study conducted by Swisdak & Flaherty (1964) dealt with an all-female sample but did not deal with ability groups. The subjects comprised the entire freshman class entering Mount Mercy college in September 1958. The California Psychological Inventory was administered to the 170 women (102 graduates and 68 nongraduates) during the first week of the freshman year and at the end of a five-year period. None of the CPI scores showed a difference at the .05 level; but mean comparisons for three scales reached the .10 level of significance--sociability, capacity for status, and achievement by conformity. In addition, 16 out of the 18 traits showed higher mean scores for graduates than for dropouts. According to probability theory, the chance possibility of getting such data is less than two chances in 100 (.017). Swisdak and Flaherty suggested that it was possible, in view of the 16 higher means for graduates, that a replication of their study with a larger and more heterogeneous sample would show significant differences for more of the CPI scales.

2. Men

An investigation by Vaughan (1968) explored the differences in personality characteristics among three categories of undergraduate men: (1) 78 males dismissed for academic reasons (D); (2) 62 who withdrew voluntarily for nonacademic reasons (W); and (3) a control group of 141 students who entered the University as freshmen and were in the process of completing their education (C). The total dropout sample of groups D and W were referred to as Group T.

Over the course of five years, a battery of tests, including the MMPI, was administered to all incoming freshmen. Statistically significant differences occurred between Group C and the other three groups on the L and F scales. Group D scored significantly higher than did C on Hy, Pd, and Ma. No significant differences were found between Groups W and C. When Groups D and W were combined to form T, the W's scored higher than C's on Pa and Hy.

In frequency and percentage of high point scores, Groups D and C differed on scale Pd, with Group D scoring higher; but when D and W were combined, the difference with C was lost. This same phenomenon held with scale Hy, only in the opposite direction. Group W scored higher than the .01 level on scale Pa, but again the difference was lost when D and W were combined.

An index of possible pathology was manifested in the frequencies and percentage of T scores at or above 70. In Group D, 34.6 percent scored at or above 70 on two or more clinical scales--13 with two and 14 with three or more scales. In Group W, 22.6 percent scored at or above 70 on two or more clinical scales. Combining D and W (T), 29.3 percent scored at 70 or above on two or more scales; and in Group C, 18.4 percent. The differences between the groups in the proportion of scales with two or more high point evaluations was significant for Groups D and C, for W and C, and for T and C. These results indicated that the dismissed students were more likely than the persisting students to be emotionally distrubed, impulsive, unable to profit from past experience, and lacked a deep commitment to education. They also tended to be unstable, overly active, and restless. All these characteristics could work against effectiveness in academic achievement. The students who withdrew for nonacademic reasons failed to manifest the same characteristics to a degree significantly in excess of the persevering students. However, they did manifest suspiciousness, oversensitivity, and egotism. Both groups had a higher Hy score than persisting students. In the case of both groups, failure to accept psychological limitations, blocking any attempt to change basic attitudes, may have been a factor leading to dropout. Both dismissed and withdrawing students made a greater effort than the persisting students to paint a rosier picture of themselves in a testing situation. However, all three groups scored well within the normal range in this regard.

In an investigation of certain incongruities, Peterson (1969) conducted a study using the MMPI to assess personality characteristics of persisters and non-persisters in an engineering curriculum. Peterson's all male sample was drawn from the entering freshman classes of September 1960 and 1961 at the South Dakota School of Mines and Technology. The students' assignment to one of the following categories was based upon whether or not they had completed an engineering program by June 1968: (1) total group of nonpersisters; (2) nonpersisters who withdrew with cumulative honor-point rations below 2.00 (C); (3) nonpersisters who withdrew with cumulative honor-point ratios above 2.00; (4) upper quartile persisters; and (5) lower quartile persisters (also based on cumulative honor-point ratios).

The total group of nonpersisters was found to have significantly higher MMPI scores than persisters on the F and Pd scales. Both subgroups of nonpersisters differed significantly from persisters on the Pd scale. On the basis of the above findings, it was concluded that nonpersisters in engineering tended towards greater independence and nonconformity than did persisters. Upper quartile persisters seemed to display some defensiveness in responding to the personality inventory items.

3. Women and Men

Several studies have been conducted which have included the differentiation between female and male dropouts and persisters. One study investigated differences in ability, personality characteristics, and social status between students who had graduated within five years of matriculation and those who withdrew from the University of Illinois at Chicago Circle during that period. Zaccaria & Creaser (1971) analyzed Edwards Personal Preference Schedule (EPPS) scores for 134 females and 275 males. The students were assigned to one of four groups according to cumulative grade point average achieved at the end of spring quarter

1968. Group G consisted of students who had received a baccalaureate degree within the five-year period. Achieving withdrawal subjects were defined as students withdrawing with a GPA of 3.00 (C) or more. Subjects who withdrew on probation on or before the end of the first semester were termed nonachieving withdrawals. Students dropped for academic failure were assigned to the fourth group.

The findings of the EPPS administration did not differentiate all four (eight) groups equally, but the results did suggest that the needs of students who persisted to graduation were somewhat different from those of equal ability who chose to withdraw. Both male and female withdrawals in good academic standing appeared as less conforming than the graduates. The females seemed to have greater heterosexual concerns, and the males appeared to be more assertive, when compared to females and males who persisted to graduation. Needs manifested by the withdrawals suggested that they might continue to succeed in another setting, educational or occupational. As all EPPS scores fell within the normative range, Zaccaria & Creaser supported the idea that the withdrawals' personality characteristics were not necessarily indicative of maladjustment or emotional problems but that they might be expressions of developmental needs not fulfilled within the present educational system.

Astin (1964) studied the tendency to drop out of college before graduation in a four-year longitudinal study of 6,660 high-aptitude students (4,472 males and 2,188 females) drawn from the 1957 National Merit Scholarship competition. Data collected on the subjects included the CPI and the Inventory of Beliefs (IB). A dropout was defined as any student who reported that she/he (a) had not yet completed undergraduate training, and (b) was not currently enrolled in a college or university. All other students, including those who had changed colleges and those who had dropped out and were re-enrolled, were defined as non-dropouts.

Six of the 18 CPI scales were significantly predictive of dropping out. The scale correlations patterns were very similar for both sexes. Three of the four scales predictive of dropping out for males were also among the five scales which predicted female attrition. According to Gough's interpretation of the CPI scales, a person having the pattern of scale scores associated with the higher rate of dropout tends toward overemphasis of personal pleasure (low Sc, high Fx), tends to be aloof (low Ac and low Gi), self-centered (low Sc and low Gi), and assertive (low Sc and high Fx). No significant relationships were obtained with the IB scores.

Peterson (1967) administered a battery of tests to female and male freshmen who entered the Utah State University in the fall of 1959. The battery included: (1) Brown-Holtzman Survey of Study Habits and Attitudes (SSHA); (2) California Psychological Inventory (CPI); (3) Minnesota Multiphasic Personality Inventory (MMPI); and (4) Mooney Problem Checklist (checklist). Over four years later a follow-up study was conducted. One dimension of the analysis was sex; the other dimension was persistence. Subjects were classified according to eight persistence categories:

(1) graduates; (2) returnees; (3) transfer graduates; (4) transfer attending; (4) transfer-dropout-passing; (6) transfer-dropout-failing; (7) dropout-passing; (8) dropout-failing.

Students who persisted until graduation tended to be seen as self-confident, had a high degree of self-acceptance and ego strength, and were relatively free of self-doubt, as well as being verbally fluent, poised and confident in social groups, intellectually able, and well-informed. They had better study habits, they adjusted better to college, and were plagued with fewer family and personal problems. Students failing at the time of dropout tended to be characterized as restricted in both outlook and interests, lazy, passive, defensive about their occupational futures, easily disorganized and defensive under pressure to conform, also unadventurous and socially nonparticipating.

B. ONE AND ONE-HALF TO THREE YEARS ALLOWANCE IN DEFINITION OF PERSISTER/DROPOUT

1. Women

A three-year study by Durflinger (1963) dealt with the prediction of personality traits as related to persistence in a teaching program. The 464 subjects were women students enrolled at the University of California, Santa Barbara, fall semester 1959, spring 1960, and fall 1960 who indicated an interest in teaching grades kindergarten through eight. By spring semester 1963 they were divided into four groups as follows:

a. Those who pursued a teacher preparation program to student-teaching in the senior year (Stayins).

b. Those who selected the teaching program but were dropped by the University because of low grades (Drops).

c. Those who selected the teaching program but transferred voluntarily to another major within the University (Transfers).

d. Those who for reasons other than academic withdrew from the school within three years (Withdrawals).

The students in the four defined groups were administered the American Council on Education Psychological Examination (ACE), the Minnesota Teacher Attitude Inventory (MTAI), the CPI, and the Heston Personal Adjustment Inventory (HPAI).

The Stayins were slightly, but not significantly, lower in mean ACE scores to the transfers. They were also significantly lower in Q, T, and total mean scores than were the Transfers. Though slightly lower in L factors, they were higher in the Q factors than were the Withdrawals.

The Stayins had higher MTAI scores than the students in the three other groups. Stayins were significantly higher in mean scores to Transfers and Withdrawals. Durflinger suggested that this test showed promise of identifying those who would be likely to complete the elementary credential program with success once they had begun.

Stayins seemed to score higher than the other groups on several of the CPI scales, though few of the differences between the groups were statistically significant. The Stayins tended to have higher scores on the Dominance scale, although this was significant only in relation to the Withdrawals. However, on the Flexibility scale, Stayins tended to be less flexible and more deliberate, cautious, guarded, methodical, mannerly, and rigid than the other three groups on the average. Stayins were also significantly lower than the Drop group and the Withdrawal group in femininity of interests.

As measured by the HPAI, the Stayins excelled the other three groups in Analytical Thinking, Sociability, Emotional Stability, Confidence, and Personal Relations, except in the instance of the Withdrawal group relative to the Sociability and Personal Relations scales. Durflinger stated it may be a significant finding in the HPAI that, except for the Home Satisfaction scale, all but two of the mean differences indicated that the Stayins were superior.

3. Men

Athanasiou (1969, 1971) conducted a study of the effects of selection and socialization (in college) on personality characteristics and persistence in an engineering curriculum. The OPI (Omnibus Personality Inventory) and a comprehensive questionnaire were administered to 892 male subjects just prior to their freshman year. In the second quarter of the group's sophomore year, a second questionnaire was administered to the students still at the university. At that time the effective population was 667 subjects, since 195 of the original group had left the university. Students still in the engineering college received a slightly different version of the questionnaire than those who had transferred out of college.

The data from the questionnaires was combined in a cross-validated item analysis paradigm to yield measures of (1) authoritarian attitudes, (2) self-perception and perception of goals, (3) interpersonal social relationships and views of friendships, (4) professional and educational interests, and (5) an index of social experiences.

Results indicated that students who transferred out of engineering were less authoritarian, had greater interest in acquiring knowledge about themselves, were less likely to be satisfied with the traditional aims of engineering, and were more changed than students who remained in the engineering curriculum. The differences increased substantially over time. Comparisons of GPA's for engineers and for transfers indicated that grades were not a factor in identifying transfer students.

Anthanasiou suggested that selection procedures based on the above-mentioned measures would not bring about a reduction in attrition but that the study offered some tentative suggestions for curriculum revision which would allow students more time prior to making a decision about major field specialization.

The relation of perception of interpersonal relationships to college persistence was the subject of a study by MacKay (1965). Persistence was defined as registration in the third consecutive semester of college. The Student Opinion Survey (SOS) was administered as a measure of maturity of perception of interpersonal relationships and was derived from the Inventory of Personal Opinions.

The Inventory of Personal Opinions, an instrument developed by the U.S. Naval Training Command to classify and predict the behavior of Naval delinquents, classified individuals according to one of the following four integration levels: (I) levels which MacKay thought to be related to descriptions of successful and unsuccessful students: Level 2: one who is impulsive, incapable of awareness of social consequences of her/his own behavior, and incapable of postponing need gratification; Level 3: one who focuses his interpersonal behavior on manipulating others and who is concerned only with values present in the immediate environment; Level 4: one who has an internalized set of values regarding his behavior and that of others; rigidity of his value system may result in tension and inappropriate social behavior; Level 5: one who has achieved a reasonable measure of role flexibility, a fairly effective understanding of behavior of others, and is better able to carry out long-range plans and to establish satisfying interpersonal relationships.

The subjects for this study were 427 male students who had entered a public junior college for the first time in September 1960. The criterion data for assigning subjects to the dropout or persister categories were obtained after three semesters.

Results showed the correlation between I-level and persistence was low but positive and significant. The relationship between I-level and persistence was closer at the extremes of the range of aptitude than in the center when aptitude was divided into quarters and maturity dichotomized between the two upper and lower levels. A significant difference was found between the distributions of I-levels of persistent terminal and persistent transfer students. MacKay maintained that the results obtained in this study demonstrated that quality of interpersonal relationships is a relevant variable in academic success.

The Picture Identification Test (PIT), a semi-projective test developed by J.L. Chambers, was used by Musselman, Barger & Chambers (1967) in discriminating among students who were successful in meeting the academic, social, and personal demands of university life and those who were not. Though other measures were available from the PIT, this study dealt primarily with the Judgment (J) and Association (AI) scores and a derivative of these two scores called the Effectiveness Indicator (EI). On the test high J and AI scores reflect high conformance with normative groups.

Six measures of effectiveness were selected: (1) "normal progress," defined by registration for at least two terms a year; (2) "persistence," defined by being enrolled after two and one-half years; (3) "withdrawals," both during and after terms, and whether application had been made to other colleges after withdrawal; (4) "suspension," for poor scholarship; (5) academic achievement as defined by GPA; and (6) behavior resulting in disciplinary action.

Results generally showed that those with high EI scores did better than those with the low EI scores. However, only on the occurrence of disciplinary action did the difference in the incidence for the two groups exceed the .05 level of confidence. A larger proportion of high EI-scoring subjects made normal progress than did those scoring low. Neither the high nor the low groups differed significantly from the random group on any of the measures. Musselman et al. stated that these findings of the study were consistent with other measures of perceptual conformity, in that adjustment was related to response conformity and maladjustment related to deviant response tendencies.

3. Women and Men

The Minnesota Counseling Inventory (MCI) was used by Johnson (1970) to compare personality characteristics of persisters and nonpersisters at the University of Minnesota. Subjects completed the MCI immediately prior to beginning college as a part of entrance procedures. The subjects were followed for four quarters. Each subject earned at least a 2.0 (C) GPA on academic work completed through the fall quarter a year after admission. A "persister" was defined as a student completing twelve or more credits in each of the four quarters following admission. A "nonpersister" was defined as one completing at least one credit the first fall quarter and completing no credits in the second fall quarter. The sample included 2,470 persisters and 433 nonpersisters.

The square values for individual items were statistically significant at or beyond the .05 level in eight cases for men and in 76 for females. Since one would expect to find 18 items out of 355 to show significance at this level by chance, further development of a new scale for males was abandoned. A Nonpersistence scale was constructed for females using those MCI items which showed a 10 percent or greater difference in response rates between female persisters and female nonpersisters. The scale was scored in the direction of nonpersistence.

Mean differences on the MCI Conformity scale were statistically significant for each of the four independent comparisons of two for each sex. Comparisons on the Family Relationships scale were significant once for each sex, and significant differences were found for validation and cross validation comparisons involving the Nonpersistence scale.

Attention in this study was directed, then, toward the Conformity, Nonpersistence, and Family Relationships scales as measures of personality characteristics having potential for discrimination between persisters and nonpersisters; and the Nonpersistence scale was suggested by Johnson as a research tool.

The OPI was used to differentiate personality characteristics of persisters from those of nonpersisters in a study by Cope (1968). Selected scales from Form D of the OPI were administered during summer orientation to all incoming freshmen. Two years later scores of the students who had dropped out (565) were compared to scores of a persisting group (a randomly selected sample of 730). Not all of the 13 OPI scales were used; only the seven scales that seemed most relevant to a liberal arts curriculum were used.

Percentage distributions for each scale were calculated for dropouts and stayins. The scales distinguishing dropouts from stayins were three: the dropouts scored lower or more conservatively than the stayins on the Religious Liberalism scale. For females lower scores on the Estheticism and Theoretical Orientation scales were associated with dropping out.

Brewer (1969) found a significant relationship between some personality characteristics, as measured by the Guilford-Zimmerman Temperament Survey and college persistence. Brewer used 207 male and female students. These students all failed to attain an overall GPA of 2.0 (C) during their first semester in college and fell within the middle 68 percent when ranked according to the scores of their ACT Summary Analysis Probability Scores. College persistence was defined as completion of two years at the junior college level.

For female students "Emotional Stability" was significantly related to college persistence, while for males "Masculinity" was shown to be significantly related to college persistence.

Bates and Walker (1965) used the Rorschach Test to differentiate between the personality characteristics of persisters and nonpersisters in a three-year study. All subjects, 68 women and 62 men, began in the study as entering freshmen. After three years the scores of those who continued in school and those who had dropped out were separated.

No significant differences existed between scores of women who dropped out and of those who remained. However, five Rorschach variables differentiated the two men's groups: number of responses, inanimate movement, shading, number of refusals, and number of content categories. These results were interpreted by Ames and Bates to suggest that even when matched for intelligence, the males who persisted in college were more richly productive, more sensitive, tense, and better able to tolerate tension. For women no such trends were shown. The small mean differences in scores tended more than anything else to depict dropout women as brighter and richer in personality. Ames and Bates stated that this sex difference implied that success for the men meant continuing in college, while success for the women may have meant something else.

C. FRESHMAN ATTRITION STUDIES

1. Women

The one study which used only freshman women was conducted by Heilbrun (1962). Heilbrun used six of the 15 need scales of the Adjective Check List (ACL), which was administered to the subjects as they entered college their second year. "Dropout" was defined as failure to register for the second academic year.

Results from the study indicated that the dropout women showed lower need achievement, lower endurance and order, failed to show lower heterosexual need, and showed a higher need for change. Heilbrun suggested that these findings implied that it was the relative absence or denial of certain needs that was most important in helping or hindering the female student's continuation in school.

2. Men

The three studies to be reviewed below used male subjects who were institute of technology students rather than liberal arts students (which comprised most of the subjects in the other reviewed studies).

Hanson and Taylor (1970) used the MCI as their instrument of personality measurement. The subjects in their study took the MCI during fall quarter freshman orientation. At the end of the academic year subjects were divided into four groups: (1) "successful withdraw-students" who withdrew with a cumulative GPA above 2.00; (2) "successful persist-students" who remained enrolled with a cumulative GPA of above 2.00; (3) "unsuccessful withdraw-students" who withdrew with a GPA of below 2.00; and (4) "unsuccessful persist-students" who remained for at least one additional quarter with a GPA below 2.00.

Persisting students as a group obtained lower scores on the Family Relations scale and higher scores on the Social Relations scale than did withdraw students. Successful students scored higher on the Validity scale and lower on the Conformity scale than unsuccessful students. Hanson & Taylor's interpretation of these results suggested that persisting individuals had adequate family relationships but were undersocialized and uncomfortable in a group situation. Withdrawing students were described as being well-socialized and enjoying group activities but having some family conflicts.

Hanson & Taylor suggested possible characterization of successful students as defensive in describing themselves and as exhibiting conforming and responsible behavior. Unsuccessful students seemed to be more open and honest about self-descriptions. Impulsive and rebellious behaviors were exhibited, and these individuals were tentatively described as self-centered and individualistic. The study concluded that a student's ability influences his academic success, while personality influences whether or not he persists or withdraws.

Watley (1965) also used the MCI to measure personality characteristics of persisting and withdrawing IT students. After the first year in IT, subjects were divided into four groups. Group I consisted of students who earned less than a 2.0 as freshmen but were allowed to register for IT courses at the beginning of sophomore year. Group II students were labeled academic dropouts, as they were in academic trouble at the time of withdrawal. Group III was composed of students who maintained a 2.0 but withdrew for nonacademic reasons. Group IV students earned a freshman GPA of 2.0 or higher and registered in IT the first quarter of sophomore year.

The results of the MCI indicated that the typical male student who withdrew from IT without being in academic trouble was more maladjusted than the typical student from the three other groups. Compared to the other groups, Group III subjects were moody, irritable, depressed, withdrawn, and nonconforming. Group IV subjects tended to be more emotionally stable than students of the other groups. Group III students seem to resemble slightly Hanson & Taylor's "unsuccessful" students, while Group IV was reminiscent of their "successful" student.

Rose and Elton (1966) used the OPI and the Rotter Incomplete Sentences Blank (ISB), both of which were administered during freshman orientation. Subjects were divided into four groups at the end of the academic year--the "Defaulters" (withdrew within the quarter), the "Successful Persisters" (two semesters of C or better average), the "Probation Persisters" (two semesters of less than a C average), and the "Dropouts" (voluntary withdrawal with C average or better).

Dropouts in this study showed significantly more hostility than Persisters or Defaulters. Dropouts also tended to show the most maladjustment; to show less interest in literature, art, philosophy, to be irrational and uncritical in their thinking; and to dislike reflective and abstract thought. Probation Persisters were less anxious than Defaulters, Dropouts, or Successful Persisters. They also enjoyed social contacts more than students in the other groups. Rose and Elton said that the Probation Persister reflected the standard picture of the typical underachiever that is perfectly happy, except that he's flunking out of school.

The findings for Dropouts in the Rose and Elton study seemed to correspond somewhat with those of the Watley study. However, the Rose and Elton findings differed from those of Rossman and Kirk (1970), although both had used the OPI. However, Rossman and Kirk used liberal arts subjects and divided them into only two categories, while Rose and Elton used institute of technology subjects and divided them into four dropout-persister categories.

3. Women and Men

Rossman and Kirk (1970) did a study with female and male subjects at Berkeley using the OPI. The tests were administered at the time the freshmen enrolled. Those who did not return for the next fall semester were labeled withdrawals. The withdrawals were further divided into voluntary withdrawals and failures.

Differences in scores were analyzed, and Rossman and Kirk interpreted the results to suggest that both female and male withdrawals were more likely than their persisting counterparts to enjoy abstract thinking and artistic activities, were more tolerant of ambiguities, and more readily expressed impulses and sought gratification. The withdrawals were also less interested in approaching life practically and were more intellectual in approach. Women in this category also seemed to have a greater need for independence than did women persisters. When the voluntary withdrawals were compared to the failures, the two groups differed approximately along the same lines as persisters and withdrawals.

Heilbrun (1965) found high-ability female and male withdrawals to be less task-oriented and less practical. His study employed the Need scales from the Adjective Check List (ACL). The subjects were given the ACL as part of a larger battery of tests upon entering the State University of Iowa. Thirteen months later the group was divided into dropouts and nondropouts, depending on whether or not they had registered for their sophomore year at Iowa.

A few differences were found between male dropout and nondropout groups for low-ability students but none for females. For high-ability students the differences Heilbrun had predicted were confirmed for both sexes. He suggested that for these students passivity and task-oriented (more practical) behaviors made easier conformance with the institutional values, therefore, decreasing the probability of early discontinuation of college attendance. On the other hand, high-ability students who were more assertive and less task-oriented found it more difficult to conform to institutional values and were more likely to withdraw before their sophomore year.

Heilbrun hypothesized that the social and academic regimentation imposed upon students entering a large university is more frustrating to the bright student than to the student of lesser ability, as the high-ability student has more often been previously rewarded for independent pursuit of intellectual interests.

Savicki, Schumer and Stanfield (1970) used the Student Preference Schedule (Schumer and Stanfield, 1966) to obtain their data. The schedule consists of eight role orientations which are factor-analyzed variables derived from behavior preferences of college students. Each person has a score on each of the eight variables. The role orientations are: vocational, instrumental, collegiate, intellectual, consummatory collegiate, social development, ritualistic, academic, and fraternity and sorority. After one academic year subjects were divided into five categories: successful persisters, probation persisters, dropouts, dismissals, and defaulters (withdrew within a semester).

Multiple Discriminant Analysis revealed an "ideal type" of student role orientation that was extroverted yet serious, with a goal-oriented, not purely hedonistic, outlook toward college. The ideal student would be interested in other people, would see college as a means to an occupation, would be studious, somewhat tied to the home, and would dislike "collegiate" behaviors. Defaulters and persisters came closest to this, dropouts came moderately close, and probation persisters and dismissals were furthest away. Savicki et al. suggested that male defaulters may withdraw because they cannot live up to their own or their parents' expectations, while female defaulters usually withdraw for marriage or "family" reasons. Dismissals and probation persisters differ with probation persisters for dealing with ideas, have less interest in college as a means to a job, and less interest in others on campus. Successful persisters seem to prefer behaviors that aid achievements to be closer to the ideal type. Dropouts were interpreted by Savicki et al. to be of higher status, not of academic orientation, and not participating in extracurricular activities. Being uncomfortable with lower class striving peers, she/he chooses to remove her/himself from the situation and to find more comfortable surroundings.

Barger and Hall (1964) used the MMPI to investigate the relations of personality patterns to dropping out of college. The MMPI was administered to the subjects upon entrance into college. After two semesters the scores of those who had completed both semesters were compared with the scores of those who failed to complete both semesters. For the persisters a low achievement group (GPA-0.00-1.19) and a high achievement group (GPA-3.00-4.00) were selected.

For both females and males the Mf scale showed the most significant difference in scores. Both women and men who scored in the masculine direction dropped out at a higher rate than those who scored in the feminine direction. The Ma scale, reflecting activity level, was also a frequent high point for males who dropped out. For women dropouts the Pa scale was a high point less often than expected. This scale is said to reflect academic and social leadership tendencies in a college population.

For males, differences between the two achievement groups were similar to those for dropouts and persisters. Mf high points occurred more often for those males achieving high grades than for those with low grades, and the Ma scale was a more frequent high point for the low than for the high achievement group. For females the overall differences between the two achievement groups were not significant. Barger and Hall suggested that the difficulty of many males who had a high Ma scale might be that they were having problems settling down to their studies in preference to other activities.

Chambers, Barger and Lieberman (1965) and Russell (1969) both characterized the dropout as having more aggressive tendencies than persisters; and Rossman and Kirk characterized withdrawals as more readily expressing impulses and seeking gratification.

Chambers, et al. administered the semi-projective picture identification test (PIT) to the beginning freshman class at the University of Florida. A dropout was defined at the end of the academic year as any student who left school during the fall or winter trimesters or who failed to return for the winter trimester. The investigators found that dropouts were differentiated from survivors in both female and male groups, though discrimination was better at the extremes.

Results showed a positive Att score for n aggression to be a contraindiction for survival for both females and males. The sexes were opposite for n affiliation. A positive Att score for n affiliation indicated survival for females, while it contraindicated survival for males.

Chambers, et al. tentatively described the male dropout in their study as liking to be aggressive and sociable but not liking to assume the responsibilities of leadership. He seemed to lack perceptiveness in dealing with demands and requirements made of him by circumstances. The female dropout was tentatively described as tending to be anti-social, aggressive, disliking control, and as being antagonistic toward authority. She was also likely to display poor judgment with regard to sex, personal danger, and consideration for others.

Russell (1969) used the Sixteen Factor Personality Questionnaire, Forms A and B, 1967 Edition, and the Brown-Holtzman Survey of Study Habits and Attitudes, Form C, 1965 Edition. These tests were administered to incoming freshmen. The subjects were divided into a persister group and a withdrawer group at the end of the academic year. They were also divided into aptitude groups. Those scoring above the median on the SAT Total of ACT composite were designated as high aptitudes, and those scoring below the median were designated as low aptitudes.

Russell found withdrawals on the whole to score as more aggressive. Within the high aptitude group, withdrawers scored as more outgoing, while in the low aptitude group withdrawers scored as more reserved. Within the male and female groups, withdrawers scored as more trusting, self-assured, and relaxed, while female withdrawers scored as more suspicious, apprehensive, and tense.

D. SUMMARY

Dropouts and persisters are seen as differing in personality traits. Dropouts are often characterized as more aggressive, less conforming to institutional and societal norms, less inclined to defer gratification and to see college as a means to a job, somewhat more independent, and somewhat less emotionally stable. The ideal student seemingly is conforming, task-oriented, defers to authority, is interested in others yet not overly social, is going to college as a means to gainful employment, and is emotionally stable.

Some studies characterize the nonpersister negatively, some positively, sometimes as a matter of different interpretation of scores for the same characteristics. Part of this seems to be a matter of the researcher's interpretation of whether or not the educational milieu as it is is a good model for adjustment. Those seeming to favor the status quo as a healthy model for students to adjust to may consider dropouts to be maladjusted, while those who do not seem to favor the status quo may consider the dropout to be well-adjusted--more so than the persister.

Dividing the nonpersisters into achieving and nonachieving withdrawals seems to help the above dilemma somewhat. Achieving withdrawals seem generally to be richer in personality, better adjusted to the larger society, and more productive than nonachieving withdrawals. However, not all research supports this view either. A great deal of variance existed in the results and interpretations of the studies thus far conducted.

Some studies seemed to indicate that males persisted to find success in their life work, while for females this did not seem to be true, suggesting that for many nonpersisting females success may have been conditioned to mean something else. Other studies tended to indicate that while the female in college must be somewhat more aggressive and achievement oriented ("masculine") than her noncollege-attending counterpart, she should still fit into the role defined as feminine by a (male-dominated) larger society. Females who dropped out were often "too" aggressive, "too" nonconforming, or else tended not to be confident enough in themselves and in their abilities.

Female persisters have been characterized as insightful and relatively tension-free and more deliberate, cautious, and methodical than female dropouts. It has been suggested that emotional stability in general is significant in their persistence in college. Female dropouts, however, have been characterized as being anti-social, aggressive, disliking control, antagonistic toward authority, apprehensive, and tense. It was indicated that female dropouts showed greater heterosexual concerns and a greater need for independence than women persisters. They would more frequently withdraw for family or marriage reasons, while male nonpersisters would withdraw because they couldn't meet their own or their parents' expectations. It has been suggested as well that male nonpersisters disliked assuming responsibility of leadership, while such a need for affiliation was a significant characteristic for female persistence. Male persisters generally exhibited conforming and responsible behavior as opposed to male dropouts, who were characterized as hostile, maladjusted, assertive, and as showing greater independence and nonconformity.

Only three studies (Astin, 1964; Faunce, 1968; and Heilbrun, 1965) took into account ability differences in the experimental design. Astin (1964) studied high-ability females and males; Faunce (1968), high-ability females; and Heilbrun (1965), low- and high-ability females and males. Their general findings seemed to indicate that passivity and task-oriented behaviors made easier conformance with institutional values, thus decreasing the probability of early dropout. The higher rate of dropout was significantly associated with overemphasis on personal pleasure as well as aloofness, self-centeredness, assertiveness, and difficulties with interpersonal relationships, with impulse control and with exhibiting inner tensions.

Many possible explanations exist for the wide variation of results in these studies for women and men. Some of these explanations include sample size, personality measure used, what aspect of a particular characteristic is measured by the instrument, the researcher bias in interpreting results, whether or not subjects were categorized into ability groups, and the definitions of "persister" and "dropout" used in the study. Much research remains to be done in this area before any firm general conclusions can be drawn and acted upon.

SECTION II: MEASURED PERSONALITY CHARACTERISTICS AND ACADEMIC ACHIEVEMENT

This section is a review of available research literature on the measured personality characteristics of students in relation to academic achievement. Far more investigations have explored personality characteristics and academic achievement than they have personality characteristics and college persistence. This section, first, discusses those studies using women samples; second, men; and, third, women and men. Those studies which provided for ability differences in the experimental design are included in each part where relevant.

A. WOMEN

The California Psychological Inventory (CPI), because of its nonclinical nature and social orientation, has often been used in the attempts to discover personality factors related to academic achievement. Three such investigations involving female samples have found common significant differences for only four CPI scales, these being Responsibility (Re), Achievement via Conformity (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie).

Griffin and Flaherty (1964) administered the CPI to 170 female subjects who made up the freshman class at a small liberal arts school for women. Correlations of each of the eighteen CPI traits with the freshman cumulative quality ratio (QPR) were computed, as well as correlations of scores of the Scholastic Aptitude Test of the College Entrance Examination Board (CEEB-SAT) with QPR. Those scales which proved to be significantly correlated with QPR were Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Self-Acceptance (Sa), Responsibility (Re), Tolerance (To), Achievement via Conformance (Ac), Achievement via Independence (Ai), Intellectual Efficiency (Ie), and Femininity (Fe).

A year later a similar investigation at the same college was published by Flaherty and Reutzel (1965) and confirmed these same CPI traits as being significantly correlated with academic success. High and Low Achievers were differentiated on the basis of freshman grade point average. The authors' initial hypothesis that three of these CPI traits--Achievement via Conformance (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie)--would differentiate High and Low Achievers was verified by their data. Further analysis revealed that the ten significant CPI traits found in the earlier study again were significantly higher for High Achievers. The authors then suggested that certain attributes of and attitudes toward the self are more directly related to high achievement than are those variables of a more social nature.

Another study involving the use of the CPI scales achieved quite different results. Like the two studies mentioned above, Norfleet (1968) found that the scales of Responsibility (Re), Achievement via Conformance (Ac), Achievement via Independence (Ai), Intellectual Efficiency (Ie), and Tolerance (To) proved to be significantly related to achievement. In addition, Norfleet found Social Presence (Sp), Socialization (So), and Psychological-mindedness (Ps) to be significant traits for achievement. She suggested that "Achievers are more poised, responsible, mature, and tolerant than underachievers. They seem to function well in both structured situations requiring personal initiative and resourcefulness." Achievers and underachievers were differentiated by the use of scores from the School and College Ability Test (SCAT) and cumulative grade point average. Norfleet also used the Gough Adjective Check List (ACL), which revealed that achievers and underachievers described themselves differently as well. Norfleet acknowledged, however, that such generalizations may have gone too far beyond the data to be justified in a strict sense, since the groups and obtained differences in her study were small.

Various types of college student questionnaires have been developed in the attempt to examine the relationship between certain noncognitive factors and academic achievement. One such questionnaire was administered to college women enrolled in a private college (Buescher, 1969). Scores were taken from scales of family independence, peer independence, liberalism, social conscience, cultural sophistication, motivation for grades, and family social status. Relationships between noncognitive characteristics and academic achievement were analyzed for these women by their particular curricular group and by either a high, average, or low achievement level within those groups. The findings of the investigation showed that predictors of motivation for grades, liberalism, and family independence were significant for academic prediction. Significant differences were found between curricular groups and between achievement levels on some of the noncognitive predictors. The significant contributions toward academic prediction in the various curricular areas were as follows: Art, Music and Drama--Liberalism; Natural Sciences and Mathematics--Motivation for grades-Liberalism, Total SAT scores + Motivation for grades; Social Sciences--Motivation for grades + Family Independence + SAT scores; Humanities--Motivation for grades, Total SAT scores + Motivation for grades. The specific differences between achievement levels on the noncognitive predictors were not listed in the abstract reference.

Utilizing the Sixteen Personality Factor Questionnaire and College Characteristics Index, Ionotti (1971) collected data on personal attributes as well as perception of aspects of the college environment in an attempt to reveal the extent to which these kinds of data differentiated between high, average, and low achieving students as determined by cumulative GPA. The results of this analysis, in contrast to Buescher's, indicated that no significant differences existed between achievement groups on any of the variables in the personality and environment tests. Rather, the evidence revealed that differences in perception of college environment seemed to be related to grade placement (age and experience) more than to academic achievement. Further, feelings of self-worth and orientation toward masculinity-femininity were not found to be related to the academic achievement of the sample.

Guerney and Barton (1967) had felt that little had been done to explore the individual's perception of the difference between herself and her peers or to relate such differences to meaningful variables. Therefore, they attempted to investigate further the utility of the variable of Typical Peer perception in association with Self and Ideal measures related to the level of academic achievement. From their sample of female freshmen, they devised two groups, high and low achievers, who were observed for differences on the measures of magnitude and direction of discrepancy scores between Self, Ideal, and Typical Peer perceptions, as well as description of these three perceptions. All these percepts were measured on the variables of Dominance (Dom) and Love (Lov) using the Interpersonal Check List (ICL). The authors attested that a high score on Dom would characterize those individuals with tendencies toward managing others, bossiness, and liking responsibility as opposed to being shy, timid, or passive; and a high score on Love would characterize those individuals with tendencies toward agreeableness, fondness toward others, kindness, generosity, and sympathy as opposed to criticalness, selfishness, unfriendliness, or strictness. The essential differences as shown by the researcher's results proved to be that in comparison with low achievers, high achievers viewed their Typical Peer as low in Dominance and tended to view themselves as low in Love. The speculation was made by Guerney and Barton that the variable linking these findings to one another and to the level of achievement was that of competitiveness.

Sundheim (1963) investigated more closely the relationships between academic success of college women in different curricula and sex-role concepts, the need for achievement ("n" achievement), and the need for affiliation. Sundheim administered the McClelland's Test of "n" achievement, French's Test of Insight, and three open-ended questions of female sex-role concepts to college women in three different curricula, each of whom had completed sixty semester hours of schoolwork. Results revealed that college women who scored high in "n" achievement did not earn higher grades than those scoring lower in "n" achievement. Again, as revealed in Buescher's results, significant differences showed up within the curricular groups but this time as measured by "n" achievement scores. It was indicated that women who perceived their sex role as including activities outside the usual feminine stereotype did not score relatively higher in "n" achievement nor did they earn higher GPA's than those women who perceived themselves as being more traditional.

When administering the Opinion, Attitude and Interest Survey (OAIS), Graff and Hansen (1970) found that their results gave little support for the use of the survey as a single or supplementary predictor of academic performance, although one OAIS scale, Achiever Personality, correlated significantly with grade point average. However, this relationship was not considered to be very substantial, due to the percentage of variance it accounted for in grade point average. These results suggested that the predictor of academic performance is most efficient when utilizing high school average and aptitude tests. However, Graff and Hansen had pointed out that the lack of success in prediction may be due to the criterion process of academic achievement. They suggested that "There is a need for research that takes into account the dynamics of the social structure and the phenomenological field of the individual operating in that structure." Their results provided some support for the concurrent and predictive validity of several of OAIS scales when the College Inventory of Academic Adjustment (CIAA) was used as the criterion measure. In that case Achiever Personality, Emotional Adjustment, and Social Adjustment seemed to predict academic adjustment factors.

Cameron (1968) administered two subsets from the Michigan M-scales and scores from the School and College Ability Test (SCAT) to 58 college black females enrolled in an educational psychology course. He found that M-scales correlated positively with the academic achievement of the students, even though they were not found to be significant for an equation designed to predict achievement. The SCAT was found to be a good predictor of academic achievement as well. Cameron pointed out, however, that his results may have had lower correlation coefficients of M-scales with GPA than other similar studies because his sample was characterized by a high degree of homogeneity of middle-class persons.

Teahan (1963) studied 46 high-ability freshman women and their mothers and fathers. In this investigation Tukey used Shaw's (1961) suggestion of controlling for chronicity of underachievement when investigating the underachievement phenomenon but studied a group of students which seemed to fit Shaw's description of "hidden underachievers."

All of these subjects had graduated in the upper 20 percent of their high school classes. They were then divided into "high achievers" (at least a 3.0 grade point average at the end of freshman year in college) and "low achievers" (who received less than a 2.0 grade point average). The groups had been matched on the basis of College Qualification Test (CQT) scores and father's occupational level.

Child rearing attitudes of the students and their parents were measured by a "Parental Attitude Scale," whose items were arranged into three subscales: a "Possessive" scale, a "Dominating" scale, and an "Ignoring" scale. From the results of this instrument it was indicated that it was the mothers' disparate attitudes which seemed to separate the low and high achievers. Mothers of low achievers were more dominating than their daughters, while no such disparity was found among the high achievers and their mothers.

Fathers of both achievement groups were similar in the sense that they were significantly higher than their daughters on the dominating and the possessive scales. In addition, fathers and mothers of high achievers were significantly lower on the ignoring scale than their low achiever counterparts. Teahan felt that the most interesting feature which emerged from the study was the disparity between mother-daughter attitudes toward domination which seem related to the daughters' academic achievement.

Todd et al. (1962) explored certain nonintellective differences between normal and underachievers of superior ability when using a sample comprised of 139 women at the University of Colorado. Classified by grade point average, these women were categorized as "normal achievers" and "underachievers." All subjects were administered a Goal Preference Inventory (GPI), an Inventory of Expectations (IE), and a Vocational Goal Questionnaire (VGQ). These three instruments were designed to elicit information directly relevant to the hypotheses of the investigation.

Todd et al. found that there were no significant differences between the two groups on need for academic recognition and need for social love and affection. The results indicated that underachievers would have a lower expectancy of doing well in their academic work than would normal achievers. Another finding of the study was that a significantly greater proportion of the normal achievers than of the underachievers indicated an "ideal" vocational goal; that is, what they would most like to be if they could be anything they desired. No differences were found between normal and underachieving superior women as regards the relationship of course work to the attainment of their intended vocational goals, to their future success in life, and to their future happiness.

Berger (1964) studied the grade achievement of high-ability freshman women in the Liberal Arts College at the University of Minnesota. He found that high-ability women who were less perfectionistic and more willing to accept human imperfections, as measured by "Willingness to Accept Limitations" scale (WAL), received significantly higher grades than those who were more perfectionistic. His thinking was that such students were unable to accept the ordinary limitations that go with being human--being imperfect, making mistakes, being disappointed at times. On the contrary, their thinking was perfectionistic, absolutist, categorical.

Dement (1963) studied women subjects majoring in the physical sciences and engineering. Each of the nine different colleges and universities involved in the study had been asked to nominate some of its superior women in these scientific fields. The sample consisted of 129 women, including seven students who elected to change their major from scientific fields to humanities subjects even though they were succeeding scholastically. This type of selection process predetermined the students of being of extraordinarily high ability.

Dement found a striking pattern of similarity throughout the group in the profiles of the Allport-Vernon-Lindzey Study of Values (AVL). An extremely high Theoretical and low Economic score was consistently found. The women often scored high on the Aesthetic scale, particularly the mathematics majors, and comparatively low on the Social Service and

Religious scales. Those seven who did not continue in the scientific fields had patterns very similar to the average female profile--smoothed out and hovering around average scores--as contrasted with extreme points of those who persisted in scientific studies.

Heist, McConnell, Matsler, and Williams (1961) studied two groups of 1956 National Merit Scholarship students who were selected on the basis of attendance at educational institutions ranked high or low in the production of future scholars and scientists. Samples of females in the two productivity categories were matched on total Scholastic Aptitude Test (SAT) scores (verbal and math combined) by drawing students at random from low-productivity institutions and pairing them with high-productivity institutions, resulting in 41 pairs of females. Personality differences between the matched groups from both sources were explored by means of the OPI and the AVL.

The investigators found that the females in the highly-productive institutions, in comparison to the females in the less-productive institutions, scored significantly higher on the Complexity of Outlook, Thinking Introversion, and Ego-Strength scales of the OPI and significantly lower on two Authoritarianism (F and F4) scales. Heist et al. also found that the females in the highly-productive institutions scored significantly higher on the Aesthetic and lower on the Religious scales of the AVL. The two groups did not have significantly different scores on such scales as the MMPI Schizophrenia and Hypomania scales nor on the Impulse Expression scale.

The Minnesota Multiphasic Personality Inventory (MMPI) has been used in two studies which have attempted to determine indices of predictive validity for both cognitive and noncognitive variables when using a number of measures along with the twelve MMPI scales, including the California Reading Test, California Mathematics Test, and high school grade point averages. These investigations involved female freshman trainees at a student nursing program. In the earlier study, Haney, Michael, and Gershon (1962) mentioned as a point of interest in their results that the Hs and Pd scales of the MMPI registered statistically significant negative validities with respect to grades in four courses and ward rating. The follow-up study done by Michael, Haney, and Brown (1965) revealed that among the tests used the California Reading Test and the California Mathematics Test, as well as measures of high school achievement, almost always offered positive prediction of academic success for the nursing program; yet their results concerning MMPI correlations had consistently indicated that at best the predictive validity of these MMPI scales had been barely significant.

A sample of nursing students was again used in a study by Hansen (1969). This investigator, however, used the Edwards Personal Preference Schedule (EPPS) in an attempt to discover if the needs measured by this test could be used to predict academic achievement. Those subjects with unsatisfied needs or who had conflicting needs were compared with those whose needs were satisfied. The results indicated that the hypotheses could not be supported, and the results were negative. A description of these rejected hypotheses was not provided in the abstract reference.

Tukey (1964) used the EPPS along with the Rokeach Test for Dogmatism when he studied ways in which intellectually-oriented superior women differed from socially-oriented women. The twenty-three women included in the "socially-oriented" (SO) sample were characterized by high leadership qualities, as evidenced by important campus positions held. On the other hand, the "intellectually-oriented" (IO) women, a group of 25, had no record of leadership in these important campus organizations. The authors noted that while the grade point averages of both groups were the same, the IO group was enrolled in more demanding programs such as math and physics. The results of the EPPS indicated that the two groups were not markedly different in measurement of their hierarchy of needs, although a few differences were indicated: the IO's had a significantly greater need for Achievement and Autonomy than did the SO's. As well, the SO's proved to score higher on Deference, while the IO's scored significantly higher than did the SO's on Exhibition. The Rokeach Test revealed no statistically significant differences between the two groups.

Ross (1963) studied a select group of potentially-superior women students who were in the top one percent of their freshman classes at Michigan State University (MSU). All of these 101 subjects had test scores at or above the 96th percentile on both the CQT (Total score) and the Michigan State University Reading Test and had enrolled at MSU in the fall of 1958, 1959, 1960, 1961, or 1962. Ross conducted both a cross-sectional analysis of these selected samples from the five freshman classes and a longitudinal study of the 1958 freshman sample.

Ross found that on the Vassar College Attitude Inventory the total sample of high-ability women tended to have higher scores on the Social Maturity (SM) and Repression-Suppression (RS) scales and lower scores on Developmental Status (DS) and Masculine Role (MF) scales. Ross also found that on the Vassar College Attitude Inventory there were statistically significant differences among the five samples on two of the seven scales. These two scales were Social Integration (SI) and Repression-Suppression (RS).

Of the 16 select women who had entered MSU in 1958, 12 graduated. Changes in attitude and values from freshman to senior year were assessed from a variety of test data. The scores on the Vassar College Attitude Inventory for the 12 women were significantly higher on the Social Maturity, Developmental Status, and Repression-Suppression scales.

The Inventory of Beliefs was used to measure attitudes of stereotype. The Inventory explored the students' tendencies toward idocentrism, ethnocentrism, and egocentrism. As freshmen, the 1958 selected sample appeared to be mature, flexible, adaptive, and democratic in relations with others and moved from the freshman year to the senior year in the direction of even greater maturity, flexibility, and nonauthoritarianism. The women comprising the top one percent sample started out in the freshman year above the mean for all women in the freshman class and completed the senior year above the mean for all women in the senior class.

The Test of Critical Thinking was designed to measure a student's skill in rational, objective, and scientific reasoning. The 1958 selected sample gained in this skill from the freshman to the senior year and was above the mean for all women in both the freshman and senior classes.

The instrument used to measure values was Prince's Differential Values Inventory, which placed a student's values along a "traditional-emergent continuum." The emergent values gained over the traditional values for the 1958 sample during the college years. The select group started out more traditionally-oriented than the women in their freshman class and became more like the women in their senior class. There was no significant difference between them at graduation, but there was a very significant difference for the selected sample in the change they had made moving from the traditional to the emergent end of the continuum.

The Rokeach Dogmatism Scale, designed to measure individual differences in the extent to which belief systems are open or closed, gave a measure of general authoritarianism or dogmatism, with the higher scores reflecting a greater degree of dogmatism. The 1958 selected sample became less rigid and authoritarian and more open to change in attitudes toward people of different races, creeds, and religions over the four-year period. The selected sample was less dogmatic than other freshman women, and it maintained the same difference with their classmates as seniors.

B. MEN

Investigations employing male samples are more numerous and diverse in character, yet many of the more popular tests such as the CPI, MMPI, and EPPS have still been used frequently.

Kunert (1970) utilized Gough's four CPI groupings of "adjustment and development" in his investigation: I. Measures of poise, ascendancy, and self-assurance (scales for Do, Cs, Sy, Sp, Sa, and Wb); II. Measures of socialization, maturity, and responsibility (scales of Re, So, Sc, To, Gi, and Cm); III. Measures of achievement potential and intellectual efficiency (scales for Ac, Ai and Ie); IV. Measures of intellectual and interest modes (scales for Py, Fx, and Fe). Kunert assumed that previous limitations of success in studies using personality factors as predictors of academic achievement was the result of failure to delimit the nature of the group being predicted. Thus, in his study he had hoped to improve prediction by more specific identification of the subjects. His sample consisted of 250 freshman males at the University of Detroit. The students were administered the CPI, the Maudsley Personality Inventory, and the Otis Quick-Scoring Intelligence Test. The groups were divided into high, average, or low on the Maudsley and Otis tests. A person was predicted a particular GPA in accord with the cluster scores derived by the mean T score for the scales falling within each of the four groupings of the CPI. Subjects were then divided into an experimental group and a replication group. Prediction was best for low levels of achievement, but the researcher himself states, "The results of this study are quite enigmatic and certainly raise more questions than they solve." The prediction schedule yielded questionable results, as there was divergence among successes in predictions for both the experimental and replication groups.

Watson (1967) gives some support to this notion that nonintellectual personality variables are more closely related to academic achievement in maladjusted populations than among normal ones. In his study the results revealed that in general the CPI scales showed higher correlations with GPA in the maladjusted groups than in the normal sample. His sample consisted of two groups of maladjusted male college subjects and third group of normal college males. Four of the six correlations of GPA with Ac, Ai, and Ie were found to be nonsignificant. Watson's results, thus, indicated that the CPI added little to the prediction of academic success, especially after aptitude was partialled out.

Shure and Rogers (1963) were concerned with the fact that the effect of ability differences on the factor composition of test scales of personality tests such as the CPI had not been explored. To investigate this matter further, they formed three groups--high, medium, and low--from 300 male college freshmen and sophomores according to their scores on the ACE Psychological Examination; and then undertook a factor analysis of three matrices of intercorrelations among the 18 scales of CPI with the varying ability levels. Five factors were identified for all three ability groups: (A) Personal Integrity and Mental Health; (B) Social Poise or Extroversion; (C) Capacity for Flexible and Independent Thought and Action; (D) Femininity; and (E) Contented Normativism. Factor A proved to be similar for all three ability groups, but the findings suggested that Factor A tended to be more general and accounted for more of the total variance. Scales of intellectual efficiency and achievement tended to be associated with the C factor in the low group but associated with the A factor in high-ability groups. The researchers suggested that the establishment of subpopulation factor patterns may prove to be an important addition to understanding the effect of ability differences on factor composition due to the fact that test scales may differ in factor composition for different samples.

Low-achieving males were the subjects of Scharf's study (1969). The purpose of her study was to determine the differences in certain selected personality traits and academic factors characteristic of low-achieving freshman males identified as I, I-E, or E on the basis of the I-E scale for internal versus external locus of control. Three instruments, including the CPI, Heineman Forced-Choice Form of the Taylor Anxiety Scale, and a personal information inventory, were used as the main sources of data. Scharf's examination of the pattern of CPI variables reflected a higher level of adjustment by internals.

Winkelman (1963), as Scharf, hypothesized that more than one type of personality pattern is related to underachievement. It was concluded by this investigation that the underachievers were not a homogeneous group with respect to the personality patterns measured by the CPI and that no CPI profile pattern was characteristic of underachievers exclusively.

Previous attempts to develop the MMPI scales as predictive of achievement have been criticized on the grounds that relevant variables were uncontrolled. McKenzie (1961), in an attempt to reconcile this, had developed a study controlling certain relevant variables. He established seven scales using the following item analyses: (1) low-ability normal achievers versus overachievers; (2) average-ability underachievers versus normal achievers; (3) average-ability normal achievers versus overachievers; (4) high-ability underachievers versus normal achievers; (5) pooled-ability underachievers versus normal achievers; (6) pooled-ability overachievers versus normal achievers; and (7) pooled-ability underachievers versus overachievers. These scales were administered to original criterion groups and then to cross-validation groups, as deviant achievement was defined in terms of the difference between measured ability and grade point average. McKenzie's results suggested that underachievers and overachievers were more anxious than normal achievers, with overachievers tending to internalize their anxiety and underachievers tending to externalize their conflicts.

Drake (1962) challenged use of the item-analysis procedure with the MMPI for the following reasons:

> One is that unless the whole profile is used along with the new scale, the counselor would not be making use of what is known about other scales and patterns. The second reason for the inadequacy of the item-analysis procedure is that the students categorized as underachievers are a heterogeneous group with many different causal factors operating to produce underachievement.

Thus, Drake attempted to study the relationship of these scales and combination of scales with achievement. The two MMPI scales which were significantly associated with low achievement in both his original group of male students and the cross-validation groups were Pd (psychopathic deviate) and Ma (hypomania). Significance was increased when profiles with Mf (masculinity-femininity) were removed from the subgroups. Thus, it was speculated that low achievers could be characterized as defiant, argumentative, cocky, snobbish, aggressive, opinionated, or belligerent. His results suggested, as well, that there is strong support for pattern interpretation rather than individual scale interpretation.

Watley (1965) used the MMPI scales to investigate expressions of confidence and their relationship to achievement. The test measures were of three types: ability, interest, and personality. The ability tests were the Institute of Technology Mathematics Test (ITMT) and the Minnesota Scholastic Aptitude Test. The SVIB was used to measure interests. Watley found that subjects who lacked confidence normally obtained better GPA's than did confident subjects. The expressions of confidence were a function of personality scales; and relevant MMPI scales were F (Validity), D (Depression), Pd (Psychopathic Deviate), Pa (Paranoia), Pt (Psychasthenia), and Si (Social Introversion). The Not confident group obtained higher mean scores than the Very confident group on each of the five scales, F, D, Pa, Pt, and Si. Watley suggested from these results that students lacking confidence could be characterized by oversensitivity, compulsive behavior, and withdrawal from social contacts. It was also suggested that among these men expressions of confidence were not associated with the results of the ability tests.

DeSena (1964) concluded that common nonintellectual factors in the areas of interests, personality, problem areas, values, personal background, and academic and social adjustment to college can be identified which characterize over-, under-, and normal achievers as individual groups and which significantly distinguish them from each other. Eight instruments were administered to three groups of consistent over-, under-, and normal achievers over a three-term period. Results of responses to these instruments led DeSena to suggest certain common personality characteristics of consistent overachievers when compared to a consistent underachiever: The overachiever: (1) reveals a stable measured occupational-interest pattern and an increasingly strong interest in his chosen curriculum and related areas and shows a desire to specialize within his occupational field; (2) is self-sufficient and does not reveal a strong need for companionship; (3) after one year of academic experience is increasingly submissive, less self-sufficient, and more easily emotionally upset; (4) is able to concentrate on the business at hand without being distracted by trivial matters; (5) is interested in serving his fellow men and is willing to extend immediate efforts to obtain future goals; (6) reveals that his strongest values are theoretical in nature and his weakest values aesthetic in nature; (7) is hesitant to discuss his problems with college personnel (his most prevalent problem areas were identical to those of the normal and underachievers); (8) reveals a strong desire to attend graduate school and works best in a college environment that promotes self-direction; (9) is not likely to become involved in any disciplinary situations and does not find the high school-to-college transition a difficult one; (10) reveals a strong motivation for studying, is self-directing, is quite certain of his future objectives, and shows a deep sense of responsibility toward attaining goals and meeting obligations.

The EPPS was devised to measure normal personality traits based upon 15 defined needs. In its use as a predictor of academic achievement, the EPPS has generally revealed negligible results in those investigations involving strictly-male samples. Recognizing the need for cross-validation and the study of generalizibility of results, Hakel (1966) developed his study to replicate a previous investigation of Goodstein and Heilbrun (1962). Although both studies obtained the same percentage of significant correlations, in only three scales was the same EPPS scale correlated with academic achievement: Achievement, Endurance, and Aggression. Hakel had computed partial correlations for three heterogeneous ability groups to which subjects were randomly assigned, yet his cross-validation analysis yielded no instances in which any of the Edwards scales correlated with either criterion of college achievement in more than one of the cross-validation groups.

Contrary to his initial hypothesis, Osborne (1964) disclosed that neither the need for achievement, the need for order, nor the need for affiliation was correlated with grade point average; nor were any of the other 12 needs measured by the EPPS significantly correlated with grade point average. The effects of aptitude had been controlled when examining each hypothesis, and the SAT verbal and mathematical scores were used as the measure of academic aptitude. Thus, Osborne indicated that no support existed for the idea that those whose needs are not satisfied will retreat or strive in an exaggerated manner rather than strive moderately. Also, he gave no support for the hypothesis that those whose needs were strongly in conflict would retreat or strive in an exaggerated manner rather than to strive moderately.

Still in another study the EPPS failed to identify correlates of academic achievement. Using a variety of instruments besides the EPPS, Gallesich (1970) set forth to measure relevant and independent personality characteristics and attitudes. The Verbal, Math, and Total scores from the College Entrance Examination Board SAT were obtained and included with other predictor variables. Although some correlations were made with grade point average, the coefficients were generally small and due to predictor overlap; most of the ten predictors used added little to variance explained by the standard predictors, SAT scores, and HSQ.

Bachman (1964) hypothesized that the need for achievement should correlate positively with academic achievement, holding academic aptitude constant. He found that in his study the correlations between need for achievement and the criteria of academic performance were positive. However, while the correlation with introductory psychology class examination points reached the .05 significance level, the correlations with GPA did not reach the .05 level of significance in both the validation and cross-validation groups composed of sophomore males who had been administered a program of testing as incoming freshmen.

Although the investigations observed thus far have not given much backing for the EPPS as an indicator of academic achievement, some of those scales are not without support. McClelland (1969) derived multiple correlations to determine which variables would emerge as contributors to the prediction of academic achievement. Analysis revealed academically-unsuccessful students scored significantly higher on the variable of Exhibitionism than did the academically-successful student.

When McCary (1967) investigated the interrelationships of the personality variables of EPPS, she divided her sample into five different groups according to differences found in composite scores of the ACT. Her results were as follows: Study Group I: Low and Low-average achievers scored significantly lower than High achievers on both Deference and Order scales; Study Group II: No significant findings; Study Group III: Significantly lower Order scales distinguished High-average achievers from High achievers; Study Group IV: High-average achievers scored significantly lower on Heterosexuality than did the Low, the Low-average, and Average achievers; Study Group V: Low achievers scored significantly lower on the Endurance scale than did High-average or High achievers; the High-average achievers scored significantly lower than did the Average achievers on the Heterosexuality scale.

Miscellaneous attempts at characterizing male normal achievers, overachievers, and underachievers have been bountiful. The instruments employed as well as the characteristics measured are of great variety. Recent investigations involving strictly-male samples are reviewed below.

In a study employing the Omnibus Personality Inventory (OPI), Dispenzieri, Kalt, and Newton (1967) sought to determine whether differences in personality existed among levels of achievement, levels of ability, and between students in a college of business administration. Among levels of achievement, the group discovered that significant differences occurred on the variables Complexity and Autonomy. These differences led them to suggest that the "overachiever tends to utilize a more rigid approach in perceiving and organizing phenomena, that he displays less tolerance for ambiguity and uncertainty, that he tends toward intellectual conservatism, and that he is accepting of institutionally-imposed authority." Among levels of ability, significant differences were found on the following scales: Thinking Introversion, Theoretical Orientation, Autonomy, Religious Liberalism, and Response Bias. Mean scores on Thinking Introversion, Autonomy, and Response Bias increased with a rise in ability, while on the Religious Liberalism scale, the highest mean score was characteristic of the middle-ability group.

Kisch (1968) had more to say about the characteristics of underachievers when employing the OPI. He claimed that underachievers differed from overachievers, not in areas of intellectual interests or emotional adjustments, but rather that underachievers had difficulty subordinating personal needs to those of study and work demands. The study proposed that underachievers could be clustered into four basic categories: (1) One group of underachievers appeared to be attempting to compensate for feelings of social inadequacy by adopting an extroverted, exhibitionistic stance. This group was impulsive and sought out social interaction in preference to study; (2) Another type of underachiever was highly motivated but socially isolated, angry, and alienated. This group's underachievement was a product of their general conflict with any press for conformity; (3) A third pattern consisted of well-adjusted, social individuals who would probably be successful in other walks of life. Their grades seem to be the result of weak interest rather than antagonism or impulsiveness; (4) The last major type described was authoritarian, conformist, and nonintellectual. Their insular outlook made them poor candidates for a progressive liberal arts program.

Characteristics which have been hypothesized as essential ingredients for successful academic achievement were suggested in a study using as subjects the group of engineering students who succeeded in being named on the Dean's list. Grande and Simons (1967) indicated in this study that these students reported a higher high school average, need for achievement, deeper involvement in struggling for academic performance, a strong influence from pre-college peer groups, belief in planning as an essential part to academic success, sharper definition of oneself who works hard academically, and a greater degree of self-control than the individuals who were not as successful.

Schroeder (1965), in examining the relationship of Kuder's Conflict Avoidance and Dominance scales to academic accomplishment, found that a presence of high Dominance had no significant interference effect upon academic accomplishment, while the presence of high Conflict Avoidance had a significant facilitative effect upon academic accomplishment.

The suggestion has been made that personality differences related to academic achievement may not become apparent until stress has been added as a factor. Baker and Madell (1965) investigated the susceptibility to distraction for underachievers versus achievers. Initially they made three hypotheses, all of which were statistically confirmed: (1) Underachievers and achievers would not differ in performance on the benign condition; (2) Both types of subjects would show impaired performance on the distraction condition; and (3) Underachievers would show greater impairment. Haefner (1967) was also interested in the level of academic achievement as related to environmental press as well as psychological needs. While Baker and Madell measured stress by the administration of a reading comprehension task once under ordinary test circumstances and once with auditory background of humorous conversation, Haefner used the College Characteristic Index (CCI) and then the Activities Index (AI) for the measurement of psychological needs. Generally, Haefner found no significant relationships between grade point average and the degree of congruence of needs and press and no significant differences between the high-achievement group and the low-achievement group. However, when the instruments were administered for the second time six months later, each group showed definite changes: The low group indicated increased motivation for achievement, increased intellectual interests, applied interests, personal aggressiveness, and self-assertion, while the high-achievement group emphasized less the needs of self-expression, group life, and the development of formal social skills of which they had expressed previously.

The Mooney Problem Check List was used in an investigation by DeSena (1966) in an attempt to determine if differences in the number of problems designated by subjects significantly discriminated between overachievers, normal achievers, and underachievers. Overachievers revealed more concern about Finances, Living Conditions, and Employment than did the underachievers. They also faced more problems in the area of socio-psychological relations than did the underachievers, while the underachievers were more willing to discuss problems with college personnel. However, the most prevalent problem areas for all three groups were similar.

Payne, Davidson, and Sloan (1966), employing an elaborate variety of instruments, found that their personality tests (seven questionnaires of anxiety, drive, neuroticism, rigidity, and extroversion, plus Alper's standard Zeignarnik experiment) were unsuccessful and that only the Zeignarnik measure of the tendency not to repress incompleted tasks was significantly correlated with the prediction of academic success.

Watley (1965) revealed results similar to those of Andersen and Spencer (1963) that students grouped on definitions of personal adjustment did not differ in academic predictability, yet the degree of adjustment was significantly related to grades achieved in high school as well as achievement in the business college in which they were enrolled. The differences in achievement determined by the study were unexplained.

Brown and Dubois (1964) suggested that "Perhaps psychologists have erred by using indirect methods of assessment, e.g., personal inventories, when more simple direct measures, such as the present biographical items, are effective," since they found these direct measures to be effective predictors for academic achievement. From the use of the Brown-Holtzman Survey of Study Habits and Attitudes, the authors suggested, as well, that efficient study habits may be a useful predictor when efficiency is necessary, as in the field of engineering. The successful engineering student showed efficiency as a personal characteristic, while successful science and humanities students proved to be more flexible, i.e. the results confirmed the hypothesis that different characteristics were rewarded in the two colleges because of the differing curriculum. McKay (1963) found that the relationship of maturity to be the association between aptitude and achievement, too, was differentiated among different majors, although, generally, no significant relationships existed between maturity and achievement.

C. WOMEN AND MEN

In an attempt to improve the prediction of academic achievement, Kearney (1966) administered the CPI, the Brown Holtzman Survey of Study Habits and Attitudes, the SVIB, and a personal information questionnaire to a group of first-semester freshmen whose SCAT scores had placed them in the upper quartile range of ability national norms. The subjects were then divided into three subgroups according to similarity and disparity between high school and junior college grade point averages. It was found that the nonintellectual information measured from these instruments improved predictive correlations in all of the subgroups except for those with similar high school and junior college grade point averages. Several scales of the CPI contributed a moderate amount of variance, while different scales appeared in the various subgroup analyses. The most valuable single predictor, with the exception of the total females, proved to be high school grade point average. One of Kearney's conclusions suggested that maintaining a distinction between intellective and nonintellective factors as isolated variables does not appear to be warranted but rather that grades reflected nonintellective factors and important social variables.

When Stroup (1970) investigated the use of the CPI as a predictor of academic achievement, the Math and Verbal Scholastic Aptitude Tests (SAT) were found to be more highly correlated with freshman grade point averages than were any of the 18 CPI scales. Because the CPI had produced a small increase to predictive power, he suggested that the test be used with the SAT to be most efficient. Five variables for each sex were revealed to be useful predictors for academic achievement when using both tests: for women, Math, Verbal, Socialization, Achievement via Conformity; and for men, Math, Verbal, Socialization, Flexibility, and Femininity.

The Ac, Ai, and Ie scales of the CPI were measured against GPA, verbal, and quantitative ability in Evans' study (1969) whereby he had hoped to examine the usefulness of these scales as predictors of achievement. Six groups of college freshmen were used, categorized according to sex and enrollment in a psychology-adjustment course, and were administered not only the CPI but the CET and STEP as well. It was only the Ai scale which proved to produce any significant predictive potential and then only for the total adjustment and the male adjustment groups. However, the Ai and Ie scales correlated positively with verbal ability, particularly for male freshmen.

Astin (1964b), in reviewing the use of tests in research on the National Merit Scholars, felt that the most successful test had probably been the CPI. The best CPI scales for predicting college grades had been Achievement via Conformance, Femininity, Socialization, Self-Control, and Social Presence. Astin cited an investigation by Holland and himself (1962) as an example. For predicting freshman grades within individual colleges, Socialization, Self-Control, and Achievement via Conformance appeared to be the most consistently significant of the CPI scales in a number of different institutions.

Administering three standard personality inventories (CPI, OPI, and AVL) and two locally-devised instruments (Estimate of Time Intervals Inventory (ETI) and Set Toward Education Scale (ESS)), Capretta, Jones, Siegel, and Siegel (1963) attempted to measure nonintellectual characteristics of students who had experience with a university Honors program. The group differentiated the successful from the unsuccessful Honors Program students and those who decided not to join the program. Results were found to differ between the sexes, where the sex group interaction on the variables of Achievement via Independence, Self-Acceptance, Complexity, and Theoretical indicated similarity among females and dissimilarity among male groups. Generally speaking, the authors attested that Honors students were found to be intellectually oriented toward academic work and rather flexible thinkers, while unsuccessful Honors students and those who decided not to participate in the program were more practical in their approach to college and relatively constricted in thought.

Using the procedure developed by Ghiselli (1960), Richardson (1965) also attempted to increase the correlations between grade point averages and predictors. His study involved three different samples. The first two investigations were comprised of 200 female students and used the predictor instruments ACE and the scale of Ie from the CPI. These two investigations differed in their source of differential-predictability scale items (eight scales of CPI for one source and "F," "D," and "E" scales for the other source). The third investigation used 539 female and male subjects and another source of differential-predictability scale items, the MMPI. All three studies revealed negative results.

The personality characteristics of exceptional college students was the subject of an investigation done by Vaughan (1966). Administering the MMPI, CTMM, and the Kuder Vocational Preference Record to students on the University President's Honor Roll, Vaughan concluded that exceptional male college students tended to be more abnormal than the average college student or the exceptional female student but their high ability and interests counterbalanced such abnormality. The exceptional female students were found to have similar personality characteristics to those of average college women, although they showed greater intellectual ability and greater interests.

Robinson (1966) had hypothesized that students achieving academic honors and having lower academic ability would give more evidence of anxiety and other neurotic traits than such students having higher academic ability and, secondly, that the students achieving academic honors would give more evidence of anxiety and other neurotic traits than the general student population. The total score on the College Ability Test was used as an indicator of academic ability, while the MMPI and Welsh's Anxiety Index were used as indicators of personal adjustment and anxiety. The sample consisted of freshman Honors students who were divided into three subgroups of high, middle, and low ability. While significant support was gained for the first hypothesis, only limited support was found for the second. The authors then suggested that both female and male students achieving academic honors were more guarded and defensive (L, K, Pa) and tended to use repressive defense mechanisms (Hy, Hs) than did the general freshman population and that they were more passive and conforming and somewhat less hostile and rebellious than other freshman students (F, Mf, Pd, Ma). While the second hypothesis was only partially supported, there had been some evidence that male achieving students were more emotionally disturbed than other freshman male students; yet less disturbance was found in the female group.

Implementing the MMPI to investigate whether the prediction of academic achievement was influenced by personal emotional adjustment, Andersen and Spencer (1963) used samples of arts college and engineering college freshmen. These students were divided into three adjustment groups within each sex according to arbitrary cut-off points on the MMPI scale. Two predictors that were used for those arts college freshmen were high school rank and the Minnesota Scholastic Aptitude Test (MSAT), while eleven predictors were used for the engineering college students. The conclusions of the study indicated that the prediction of academic achievement was not influenced by personal adjustment, since there were no significant differences found between the adjustment groups of the students enrolled in the arts college and only one of the eleven predictor variables used for the engineering college freshmen adjustment groups indicated statistically significant results.

Employing the MMPI once again, Goodstein, Crites, and Heilbrun (1963) assumed that nonintellective variables may operate either to facilitate or interfere with a student's academic achievement. This investigation used four samples from three different schools. On the basis of a series of aptitude measures, levels were constituted and then correlated with achievement within those levels. Then for each of the four total samples' combined aptitude levels, means and standard deviations were computed for each set of MMPI variables, aptitude, and GPA. Within each sixth of the female and male Iowa samples, three groups were identified on the basis of GPA--high, average, and low achievers. The group's investigation revealed no consistent pattern of personality factors closely associated with academic success within the several levels of aptitude and over the entire range of aptitude scores. However, certain findings and suggestions from the study revealed that men who are more feminine in their interests tended to be more academically successful at all levels of aptitude. The results for women suggested that "The carelessness, the happy-go-lucky attitudes, and impulsiveness that are characteristic of high Pd (psychopathic deviate) scores would seem to interfere with successful college achievement, at least in the case of the female." Also indicated was the fact that better adjusted women earn better grades, although this was not indicated in the Andersen and Spencer study mentioned above.

The scores on the EPPS were correlated with grade point average for 357 undergraduates at the University of Iowa in a study done by Goodstein and Heilbrun (1962). For the total groups Achievement was positively correlated with grade point average for males, while none of the partial correlations were significant for females. These negative results suggested to the authors that personality correlates of academic achievement may be more evident when the subjects were divided into three subgroups of Low, Middle, and High intellectual ability groups. Then Goodstein and Heilbrun computed partial correlations between EPPS scores and grade point averages to arrive at the following results: Low-ability males: Autonomy and Nurturance were negatively correlated with grade point average;

Middle-ability males: Achievement and Endurance were positively correlated with grade point average, while Affiliation, Intraception, Nurturance and Change were negatively correlated with grade point average; High-ability males: Aggression was negatively correlated with grade point average; Low-ability females: Abasement and Nurturance were negatively correlated with grade point average; High-ability females: Intraception was positively correlated with grade point average; Middle-ability females: none of the partial correlations were statistically significant.

A year later Heilbrun (1963), again at the University of Iowa, hoped to clarify the role of personality characteristics in academic achievement by utilizing two-scale configural scoring of the EPPS. A regression line was drawn, providing expected grade point averages as a function of ability levels, with separate lines for each sex. Two classes of students were thus defined: Achievers and Nonachievers, which served to partial out the effect of intellectual ability upon academic achievement. The data suggested that male achievers were more likely to show a peak EPPS score on Need Achievement, a peak or high score on Endurance, or a low score on Change than nonachievers. Female nonachievers were more likely to score high on Exhibition and Autonomy, peak or high scores on Aggression, low scores on Intraception, lowest or low scores on Abasement, and low scores on Endurance than did achieving females. However, comparison of achievers and nonachievers on a two-scale, two-scale low, and high-scale--low-scale configural patterns generally gave negative results. Heilbrun suggested that "The most striking aspect of the results was the divergent personality patterns obtained between achievers and nonachievers for the two sexes when the scales were considered independently. Whereas the EPPS variables distinguishing these groups for the males were directly relevant to the task of academic learning, the variables distinguishing female groups were much more relevant to their mode of interpersonal relating."

Lunneborg and Lunneborg (1966) found in their investigation that the only statistically-significant correlations between GPA and EPPS were Achievement and Exhibition for males and Intraception, Abasement, and Aggression for females. When the EPPS scores were changed into percentile transformations, among females only was a higher GPA associated with high n ach, average n aff, and low n aba. Because these EPPS scores taken singly were shown to be of no practical value in the prediction of college grade point average, Lunneborg and Lunneborg (1967) attempted another study using the EPPS while applying a new technique of pattern analysis using reliable subpatterns of EPPS scores in predicting GPA. This set of results indicated that academic achievement for both sexes was associated with high needs for Achievement and Intraception and a low need for Abasement. This set of results indicated that academic achievement for both sexes was associated with high needs for Achievement and Intraception and a low need for Abasement. Although these similar patterns occurred in both studies, they were neither correlated higher with GPA than EPPS raw scores nor did they contribute to multiple prediction when added to raw scores.

The EPPS was used again by Lang, Sferra, and Seymour (1962). Their subjects were rated by instructors on a five-point scale in determining each student's academic achievement with respect to his estimated intellectual capacity. Product-moment correlations were computed between these median achievement ratings and scores obtained on the fifteen EPPS variables. For females academic achievement was positively correlated with need for Achievement and need for Dominance and negatively correlated with need for Nurturance, while males' academic achievement was positively correlated with need for Order and negatively correlated with need for Dominance.

Izard (1962) had investigated only selected scales of the EPPS in an attempt to relate such scales to the level of expectation and actual performance. Level of expectation was measured by each subject's estimated score for an objective course examination, while the level of performance was computed by the number of items correct on all the examinations taken in the course. Only the Endurance scale proved to be a significant correlation between EPPS and the level of expectation for the males, while several of the correlations between EPPS and actual performance were significant: Achievement and Abasement for males and Achievement, Dominance, Change, and Nurturance for females.

Todd, Terrell, and Frank (1962) attempted to deal with the need for achievement and other related personality characteristics by use of the Goal Preference Inventory (GPI), the Inventory of Expectation (IE), and the Vocational Goal Questionnaire (VGQ). The purpose of their investigation was to obtain information concerning certain nonintellective factors in underachievement. Four initial hypotheses were developed: underachievers, as compared with normal achievers, would (a) manifest less need for academic achievement, (b) be less likely to have decided upon specific vocational goals, (c) be more likely to perceive a relationship between coursework and attainment of goals, and (d) have a lower expectancy for success in academic pursuits. All four hypotheses were supported for the males, yet the data for females supported only the hypotheses concerning vocational choice and the expectancy for academic success. The first hypothesis suggested that female college students can take care of their social need without interfering too seriously with their academic achievement, while male college students were unable to do so. Sex differences indicated discrepancies between results on the second and third hypotheses. These discrepancies were explained by the fact that it may be difficult for female students to see a direct connection between college courses and occupation, since many of them expect their future occupation to be that of a housewife. No differences were predicted on the basis of sex for the fourth hypothesis. However, a discrepancy in the results on an item dealing with expectancy for success in coursework if maximum efforts were made to do well, revealed a significant difference only between normal and underachievers of the female group. The authors speculated then that "Ability or potential in academic pursuits is not as vital to the self-concept and self-esteem for a female as it is for a male."

Fedell (1971) also attempted to evaluate the need for achievement as a predictor of academic success but came up with very different results than Todd, Terrell, and Frank. The need for academic achievement score, as measured by the Test of Imagination, the Scholastic Aptitude Test Verbal and Math scores, high school rank, grade point averages, and the sex of each subject, was recorded. No significant relationship was revealed between the need for achievement and grade point average for the total group results or between the female and male groups. It was suggested by the author that the negative correlations found between Scholastic Aptitude Test Verbal and Math scores and the need for academic achievement indicated that the nonintellective motivational variable is independent and not significantly related to academic potential, as measured by the Scholastic Aptitude Test.

Berger (1963), in his study of University of Minnesota students who had taken an inventory which included the WAL scale (willingness to accept limitations), had hypothesized that, other things being equal, students who are more willing to accept limitations will achieve at a higher level. Subjects consisted of those women and men entering the College of Science, Literature and the Arts (SLA) and men entering the Institute of Technology (IT). Matched pairs were based upon students within five percentile points of one another on high school rank and MSAT and for IT students, those only within five raw score points of one another on a mathematics entrance test. Pairs were then made up of students meeting these conditions but who were as different as possible on the WAL with a minimum four-point difference in score on the scale. Support for the initial hypothesis was confirmed for high-performing, high-potential high school graduates (both women and men) entering SLA and also for high-performing, moderate potential men who entered SLA. The hypothesis was not confirmed for those enrolled in IT.

Powell and Jourard (1963) were interested in comparing underachievers versus achievers on measures of self-disclosure to parents and friends and on security. The investigators grouped the subjects into four groups: Male Underachievers, Female Underachievers, Male Achievers, and Female Achievers; and administered the Ainsworth Test of Security in Personal Adjustment. Only one scale, Independent Security, produced differences between achievers and underachievers, while significant sex differences were indicated on all the security subtests, with the exception of the Insecurity scale. The prediction that achievers and underachievers would differ in amount of self-disclosure was not supported by the data. Thus, as a group, the underachievers were not found to be more insecure and did not disclose less than the achievers. It appeared, however, that underachievers and achievers had different ways of maintaining security and had different meanings for their relationship with others. "The male achievers seemed to be conforming to the cultural stereotype of the male as an independent, more dominant figure, as evidenced by the high Independent Security scores... Female students also seemed to correspond to cultural expectation of the female as a more dependent, submissive figure, as indicated by the higher IDS scores." Underachievers failed to identify adequately with these traditional sex roles, and further evidence suggested that they were immature and dependent and unable to develop strong relationships with their peers.

The role of self-concept in efforts to achieve academically was discussed as well within the study done by Iglinsky and Wiant (1971). They concluded that female students tended to have less-defined perceptions of their self-concepts than males; and the male student preferred coercing and evaluating techniques over female students, suggesting that women students were more altruistic than male students. These conclusions were the results of the administration of the Tennessee Self-Concept Scale to three groups of students divided by the following procedures: Group I: students not placed on scholastic probation during freshman year; Group II: students placed on scholastic probation at the end of first semester and removed at the conclusion of the second semester; Group III: students placed on scholastic probation at the end of the first semester and suspended after the second semester. Generally speaking, the self-concept, as measured by the instrument used in the study, was found not to significantly relate to academic success. Contrary to this conclusion, Jones and Grieneeks (1970) discovered in their study that the most accurate predictor of academic achievement was self-perception. The authors had measured nonintellectual variables by the use of the Identity Rating Scale, Self-Concept of Ability, and Self-Expectation. All the variables had proven to be positively associated with achievement; and all, with the exception of self-expectation and scholastic aptitude, were positively associated with one another, even though they were not good predictors of academic achievement. The authors had warned that certain limitations must be considered in that the Identity Rating Scale for females and the Scholastic Aptitude Test for males were not powerful enough to be of effective use. They further speculated that "Among college girls there seems to be an extended period identity crisis--career girl or housewife? It is plausible that college per se could be the factor that prolongs the identity crisis in girls."

Spiegel and Keith-Spiegel (1971) found, through the use of ten different measures, the Taylor Manifest Anxiety Scale, the Custodial Mental Illness Ideology Scale, the California F scale, the 15-item short form of the Overall Agreement scale, the Dogmatism scale, the Security-Insecurity Inventory, the Internal-External Control Scale, the Institute of Living scale vocabulary and abstractions subtests, the Picture Differences Test, and the Spiegel Personality Inventory, that grade points were best predicted by different combinations of variables for females and males. However, the authors emphasized that their sample was so small that generalization to other samples should not be made. The best predictor sets for females in this study revealed: "Females who denied identification with mother's values, who admitted angry and depressed feelings, who professed to minimize social relationships, and who acknowledged disturbance by intrusive thoughts tended to have higher course grades than females who identified with mother's values, who denied angry and depressed feelings, who preferred to maximize social contacts, and who denied being disturbed by intrusive thoughts." The best predictor sets for men were: "Males with good vocabulary ability, who expressed a humanistic view of mental illness, who claimed serious dispositions, who revealed an internal locus of control, who tended to be active physically, who did not feel spacially confined, who preferred quiet environments but who tended to feel slightly alienated from others tended to earn better grades than males who had poorer vocabularies, were more custodial in their views of mental illness, used humor to provoke affective responses from others, did not feel alienated from others, were relatively inactive physically, liked noisy environments, had an external locus of control, and who felt spacially confined."

Watley and Martin (1962) attempted to determine the effectiveness of certain test measures in relation to academic success, developed regression equations for prediction purposes based upon those measures, and then cross-validated the results found in relation to the prediction of academic success. Seven test measures were used, three of the same were given to both samples, and then both samples received two test measures that were different. Academic success was defined as rank in approximately the top 25 percent of the class and academic marginality defined as rank in approximately the bottom 25 percent of the class. The data indicated that marginal males were no more Theoretical than the average college student but that the successful males were considerably less Theoretical than the average college student. Also, successful males did not obtain higher Social scores than did the average college student, but marginal males scored lower than the average college male. The GZTS traits of General Activity, Restraint, Ascendance, and Thoughtfulness also differentiated significantly between the two extreme groups of males. Females were significantly differentiated by the GZTS trait of Restraint. The Restraint and Thoughtfulness traits of the GZTS along with the Math and Verbal sections of the SAT proved to be sufficiently related to grades to be used as successful predictors of academic success. It was suggested, as well, that the Restraint and Sociability traits may also be effective predictors when combined with the Math and Verbal sections of the SAT. Suinn (1966) also found that the Restraint trait as measured by the GZTS to be significant. Students characterized as serious or showing restraint tended to achieve higher grades than had been expected from them. This study had involved an examination of relationship between the GZTS scores and grades for Upper and Lower Division students. Grade predictions were available for freshmen based on the weighted Verbal and Math scores of the CEEB. Grade point average was also significantly correlated with friendliness for sophomores, seniors, and all students combined.

Thirty-one predictor variables were established by Long (1964) in his investigation, which considered sex differences in academic prediction based on scholastic, personality, and interest factors. While interest factors generally seemed more important for women than men, personality factors seemed relatively more important for men. Thus, the investigator has speculated that the differences occurring between the sexes in the nonacademic pattern were due to the following factors: level and types of motivation experienced, level of maturity attained, and the types of courses typically chosen by women and men.

Stone and Foster (1964) found that the Stern Activities Index (SAI) scales of Achievement, Dominance, Ego-achievement, Humanism, Objectivity, Reflectiveness, Scientism, and Understanding were significantly correlated in a positive manner with predicted GPA in a number of freshman students. The students had been divided into subgroups according to what school they were enrolled, i.e., Schools of Agriculture and Engineering-Architecture (large male majority), the School of Home Economics (a large female majority), and the School of Arts and Sciences (more equal ratio of males and females), while separate prediction equations were used for each school and sex. The authors found that Order was significantly correlated in a negative manner with grade point average in four of the five groups, while Aggression was significantly related in a positive manner to predicted grade point average within the Arts and Sciences male group and the Engineering male group but significantly related in a negative manner with the Home Economics female group.

When obtained grade point averages and SAI scales were correlated, nine SAI scales were significant for the groups. The only scales which differed from those related to predicted grade point average were those of Aggression and Order. Additionally, the Play scale was found to be significantly related in a negative manner to obtained grade point average, while this scale was the only one which correlated significantly with the differences between obtained and predicted academic achievement in most of the groups. The authors concluded then that the SAI scales did not contribute much to the prediction of academic success and speculated that "If our scholastic ability tests are confounded by personality variables, it would be more difficult to find a personality test that could add much, as far as college success prediction is concerned, to what is already being measured by the so-called intellectual tests."

Stricker (n.d.) utilized the Stern Activities Index (AI) as well as the Pace and Stern College Characteristics Index (CCI) in his study of correlates of grade point average. The only one of the six nonintellective scores found to correlate significantly with grade point average was Dependency Needs for females. However, this inverse relationship was modest, and the authors tended to question its significance as perhaps due to the effects of chance.

The focus of Gottsdanker's study (1968) was on the combined effects of high ability and sex on selected areas of intellectual interest and on personality characteristics. She had selected four groups of college students: two groups of gifted students and two cross-sectional groups chosen at random from the freshman population. All the students were given the OPI, and the results from these scales indicated that "The more able students show significantly higher scores on the scales indicative of intellectual commitments, interest in abstractions, and desire for independent thought (Complexity, Autonomy, Estheticism, Theoretical Orientation, Thinking Introversion, Non-Authoritarianism, and Religious Liberalism). They show no significant differences in their scores on the scale relative to personality or 'adjustment' characteristics (Impulse Expression, Social Introversion, Schizoid Functioning, Lack of Anxiety, and Repression-Suppression)." However, when sexes were compared separately, the two male groups showed very little variation in interests measured by intellectual measures, while the Test-Selected females' profile was very different from the Cross-Section female group. The gifted women proved to be more interested in theoretical problems and expressed desire for independence and attraction to self-initiated intellectual endeavors. For both the Test-Selected and Cross-Section students, males had greater desires to directly express their impulses, while the women, more than the males, indicated a liking for harmonious and artistic ways of thinking.

In an earlier study, Heist (1962) found that on the OPI women students were at least like their male peers, if not superior to them, in their degree of interest in ideas and liking for reflective, abstract thought (Thinking Introversion scale); in their degree of cultural sophistication and self-confidence, as well as in their lack of compulsiveness, conventionality, submissiveness, and punitiveness (Social Maturity scale); in their degree of independent, liberal, critical, and unconventional perception of and reaction to the environment (Complexity scale); and in their disposition toward independence of judgment, freedom of expression, rebelliousness, and novelty of insight (Originality scale). The subjects involved in this investigation were gifted women and men drawn from the 1956 National Merit Scholarship competition. On several of the CPI scales (Thinking Introversion, Complexity, and Originality), which were viewed as a composite measure of an intellectual disposition, the women obtained higher average scores than the male students. Heist found, as well, in analyzing the scores on the AVL, that gifted women presented higher average scores on both the Theoretical and Aesthetic values.

An investigation by Nichols and Holland (1963) of a random sample of the 1960 National Merit Finalists revealed that nonintellective predictors of college grades significant for both sexes seemed to form two major clusters of traits:

1. Perseverance and motivation to achieve
2. Conformity and socialization

Perseverance and motivation to achieve was indicated by significant positive correlation for both sexes with scores on a "persistence scale" and with ratings by the students and both her or his parents on three traits--scholarship, perseverance, and drive to achieve. Conformity with socially-prescribed standards, as a predictor of academic achievement, was indicated by significant correlations between college grades and ratings of dependability and neatness. CPI scales of Super-Ego Strength and Socialization were also related to the grade criterion. A negative relationship found between grades and a "Perceptive versus Judging scale" was consistent with these findings, as the items of this scale were concerned with dislike for order, routine, and conformity to a schedule.

Academic achievement was also predicted for both sexes by self-ratings of leadership and by the number of traits rated above average by the father. In addition, for the females, academic achievement was predicted by a "Deferred Gratification scale," whose item content was consistent with tendencies to persevere and to conform, by number of elective offices held in high school, father's rating of originality, and parents' preferences for artistic and social occupations. The correlates of academic achievement found in the study indicated that the academic achiever tended to be a leader in high school.

Sarason (1961) had characterized anxiety responses as being aroused by personally-threatening conditions in the environment and that, generally, the responses to such anxiety would tend to interfere with ongoing task-relevant activity, leading to a lower performance level. He then was interested in determining the effects of test anxiety and the intellectual performance of college students. He determined the anxiety in his sample by the use of the Autobiographical Survey, which consisted of six scales: Test Anxiety (TA), General Anxiety (GA), Lack of Protection (LP), Hostility (H), Need for Achievement (NA), and Defensiveness (D). TA proved to show the most consistent results, indicating that for both women and men there were significant negative relationships between anxiety and a variety of measures of intellectual performance. Generally speaking, the same patterns evolved for women as for men and a general indication that the negative correlations with TA were stronger for aptitude test scores than for grade point averages.

Rardin and Moan (1970) had suggested that perhaps the ability involved in academic learning was not simply an "ability" at all but rather involved a tolerance for frustration. Utilizing an insoluble finger maze, the investigators measured tolerance level as the amount of time from the beginning of the trial until the subject stopped. Correlations were then computed for female, male, and combined groups between SCAT scores and grade point average and between frustration tolerance and grade point average. Frustration tolerance was found to be significantly correlated with grade point average for men only. Thus, frustration tolerance proved to be an important factor in prediction, since differences occurred between women and men and men having a higher tolerance for frustration and demonstrating a significant correlation between the measure and grade point average. For men the combination of frustration tolerance and SCAT Quantitative scores was present, while for women the combination of frustration tolerance and SCAT Quantitative scores was equal to the use of the SCAT Quantitative scores alone.

The role of sex, anxiety, and independence as moderator variables in achievement was the subject of an investigation by Crouch (1968). The data used in the study included primary and second order factors of the Sixteen Personality Factor Test, D-scores from Semantic Differential scales, quarter of high school rank, SAT scores, cumulative and special area grade point averages. Anxiety and independence second order factors were to form these moderator subgroups for each sex: low anxiety-low independence, low anxiety-high independence, high anxiety-high independence, and high anxiety-low independence. The most important findings indicated that high anxiety in the high anxiety sector was a positive factor for females and a negative one for males, that Poise and Independence were negative factors for low-anxiety females and positive ones for high-anxiety and low-independence males. Sociability and Sensitivity factors were negative influences for high-anxiety males; and Dominance, Enthusiasm, Adventurousness, and Extroversion had a negative effect on grades for both males and females.

Comparing the methods of assessing achievement motivation, Brown (1967) concluded that McClelland's theory, as opposed to Arnold's theory, did not account for different orderings and negative weightings of empirical factors and, thus, that Arnold's theory offered a better theoretical approach, since it was more comprehensive in explanation. Brown had reached this conclusion by studying a group of freshman women and men in which intermediate criteria of achievement motivation were formulated as peer-rating and self-rating identifications of behavior according to basic constructs which Arnold and McClelland had claimed to measure. Predictors used numbered 191 and came from the National Merit Scholarship Research by Holland Nichols, Cattell's PF scales, six of the CPI scales, and the Brigg-Myers Type Indicator. Rotated factors of the more significant predictors were identified as: (1) Primarily Deliberative versus Primarily Emotional Motivation, (2) Scholarship, (3) Impulsivity, (4) Introversion-Extroversion, (5) Social Conscientiousness, (6) Intellectual Ability, (7) Career Values, (8) Need Achievement, (9) Social Class Mores, and (10) Religion.

D. SUMMARY

The literature which has been reviewed thus far has differed not only in purpose, method, and test measure; but each investigator has set his own particular criterion for academic achievement and has found various kinds of results. The discussion of general trends within these particular investigations will be discussed without reference to instrument and criteria.

The attempt to predict academic achievement, e.g. grade point average, through the use of personality characteristics has shown both positive and negative results. Certain characteristics which generally have been suggested to be related to academic achievement were qualities such as motivation for grades, liberalism, family independence, emotional and social adjustment, as well as restraint, thoughtfulness, and a strong need for achievement. Dominance, capacity for status, sociability, self-acceptance, responsibility, tolerance, endurance, and aggression, as well, have proved to be characteristics associated with successful college students. One of the most controversial personality characteristics discussed has been that of personal adjustment. While many investigators contend that this variable is very significant in academic prediction, almost an equal number of others refuted it as a nonsignificant variable.

Exceptional achievement (high achievers and overachievers) has been the focus of many of these investigations. On the one hand, these exceptional individuals, as compared to average and underachievers, have been described as more poised, responsible, mature and tolerant, and functioning better in situations requiring personal initiative and resourcefulness. In other studies high achievers are characterized as being more easily upset emotionally, weaker in aesthetic values, hesitant to discuss problems, having less tolerance for ambiguity and uncertainty. Other descriptions of exceptional students have stressed that these students were normally self-sufficient, had a strong motivation for study, were not being easily distracted by trivial matters, and utilized a rigid approach in perceiving and organizing phenomena. High-ability students tended to be more guarded and defensive, passive and conforming than middle- and low-ability achievers. Their achievement was frequently correlated with factors such as intellectual commitment, interest in abstractions, desire for independent thought, rather than correlated with personal or adjustment characteristics. It was indicated, too, that high-ability students who were less perfectionistic received higher grades. Those studies which accounted for ability differences generally found that high achievers had greater perseverance and motivation to achieve as well as being more conforming and theoretical than those of a lesser ability level.

As compared to normal and high achievers, underachievers have been described as defiant, argumentative, cocky, snobbish, and aggressive. It has been indicated that they had a lower expectancy of doing well and were often more anxious than normal achievers. However, the general trend of the literature emphasized that these underachievers were not to be categorized on the basis of a particular list of personality characteristics but rather that different kinds of personality patterns make up the underachievers. Variables that differentiated achievement levels by means of personality characteristics have shown that often attributes and attitudes toward the self have been more directly related to high achievement than were social variables. Underachievers, normal, and high achievers seemed to have different ways of maintaining security and had different meanings for relationships with others.

Personality differences between the sexes indicated that males scored higher on variables more relevant to the task of learning, while the most significant variables for females were more relevant to the mode of interpersonal relations. Some investigations reflected the difficulty of females in seeing the relationship between their coursework and their occupation, since the women perhaps believed that their future occupation would be that of a housewife. Other findings revealed, however, that no differences were found between normal and underachieving superior women as regards the relationship of coursework to attainment of future vocational goals and to future life success and happiness. Males often were described by characteristics associated with the traditional male stereotype--independence, dominance, endurance, aggression, preference for coercing and evaluating techniques--while female achievers were most often described as more responsible, conforming, independent, tolerant, and mature than were female underachievers.

CHAPTER III

THE PROCEDURES

The purpose of this investigation was twofold. The major purpose was to explore the affect of personality characteristics on the college persistence of women and men of high, middle, and low ability. A secondary purpose was to describe the women and men of varying ability in terms of certain academic variables.

This chapter describes the procedures used in conducting the study. It includes the selection of the sample; the ability classification scheme; the determination of the criterion status of graduate or nongraduate; descriptions of the personality variables; hypothesis concerning the personality variables; and descriptions of the academic variables. Supporting tables and figures for Chapter III are contained in Appendix A.

Methods of Analyses are described in Chapter IV and the results of the investigation in Chapters V and VI. Discussion and implications of the findings are contained in Chapter VII.

A. SAMPLE

The sample was drawn from the group of women and men who entered the University of Minnesota College of Science, Literature and the Arts[2] as first quarter freshmen in the fall quarter of the years 1950 through 1958.

In order to be included in the sample, subjects had to:

1. Have a recorded American Council on Education Psychological Examination (ACE) score at the time of admission to the University of Minnesota (U of M);
2. Have a recorded high school percentile rank (HSR) at the time of admission to the University; and,
3. Have a University of Minnesota undergraduate transcript of courses and grades.

The number of subjects who satisfied these criteria and were thus included in the study was 10,291 (4,633 women and 5,658 men). This was 61.3

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[2] Hereafter referred to by its present name, College of Liberal Arts (CLA).

percent of the total number of students (16,785), 72.7 percent of the total number of women (6,374), and 54.3 percent of the total number of men (10,411) who entered the U of M College of Liberal Arts as new freshmen during the fall quarters of 1950 through 1958. (See Table 1 in Appendix A).

B. ADMISSIONS CRITERIA: ACE AND HSR

The College of Liberal Arts required for the years covered by this investigation that its entering freshmen have an average of 40th percentile or better on a combination of HSR and ACE percentile. The combination of HSR and ACE percentile has been referred to as the "College Aptitude Rating" (CAR). The formula for the CAR is:

$$\text{CAR} = \frac{\text{HSR + ACE Percentile Score}}{2}$$

1. American Council on Education Psychological Examination

The ACE was developed by L.L. and T.G. Thurstone for the American Council on Education. The ACE was designed to measure ability required for most college curricula, i.e., scholastic aptitude (Berdie et al., 1962). Various additions of this test have included five or six sections, such as sentence completion, artificial language, same-opposite (vocabulary), arithmetic reasoning, analogies (symbols, spatial), and number series. In recent editions these sections were grouped into two parts to give a linguistic and a quantitative score in addition to the total score (Super, 1949; Super & Crites, 1962).

> The items are probably less affected by knowledge than in most group tests, for the emphasis in selecting items was to choose those which measure ability to manipulate symbols rather than mastery of previously learned material . . . . As these tests and items have been selected and modified from earlier tests and tried out over a period of nearly twenty years on a large number of subjects, ... they consistute an unusually valid and reliable instrument (Super & Crites, 1962, p. 258).

The ACE was used in the Minnesota State-Wide Testing Program (SWTP) from 1937 to 1957 (Berdie et al., 1962). The freshmen entering CLA in the fall of 1950, 1951, and 1952 were likely to have completed the 1947 edition; freshmen entering CLA from 1953 through 1958 most likely completed the 1952 edition of the ACE. The 1947 ACE edition was incorporated into the SWTP in 1949 and was usually administered during the senior year in high school. The 1952 form of the ACE replaced the previous forms in 1953. Also in 1953 the time of testing was changed from the senior to the junior year in high school (Berdie et al., 1962a). The 1958 entering freshmen were the last group to complete the ACE (1952 edition) in the SWTP, completing it as high school juniors in 1957. (See Table 2 in Appendix A.)

Ace mean raw scores for CLA freshmen have been shown to be consistently higher than the ACE mean raw scores of all U of M entering freshmen (Berdie et al., 1962a). For instance, in 1949 the ACE (1947 edition) mean score for CLA freshmen was 119.73 (72 percentile) and for U of M freshmen 111.46 (53 percentile). CLA freshmen in 1956 had a mean ACE (1952 edition) raw score of 112 (72 percentile); the University freshmen a mean score of 105.29 (53 percentile). Fluctuations in mean scores also occurred from year to year and in the period using the same form of the test.

Comparisons between ACE mean scores of CLA freshmen and women have shown that the differences between the mean scores are small; and where statistically significant, so small that the differences are not meaningful (Berdie, et al., 1962a). The small differences between mean ACE scores for women (66.99) and men (65.89) in this investigation was not statistically significant. (See Table 3 in Appendix A.)

2. High School Percentile Rank

A student's high school percentile rank, based on her or his grade point average, indicates the individual's relative standing in her or his class. A high school percentile rank of 90, for example, indicates that a student's high school grade average exceeded those averages of 90 percent of the students in her or his class.

The high school percentile rank (in Minnesota high schools) before 1953 was based on high school grades earned through the first three and a half years of high school; that is, the rank was computed at the end of the first half of the senior year. Beginning in 1953 the percentile ranks were computed at the end of the junior year, and since that time the high school percentile rank has been derived from grades earned during the first three years of high school. Some students do achieve significant changes in rank during their last year in high school; but, on the average, the correlation between grades earned during the last and those earned during the first years of high school is so high that little improvement in accuracy of prediction is achieved by using high school percentile rank at the end of the senior year rather than at the end of the junior year (Berdie et al., 1962a).

Data have shown that CLA freshmen tend to have higher high school ranks than do University of Minnesota freshmen in general. For example, in 1958 20 percent of entering CLA freshmen had HSR's of 92 or above, as compared with 15 percent of entering U of M freshmen (Berdie et al., 1962a).

Comparisons of mean HSR over the years have tended to show a large and highly significant difference in favor of the women. Young women who enroll in CLA have a significantly higher mean high school rank than do the CLA men; and within their own sex group, women must possess higher grades to be "at the top" than do men (Berdie et al., 1962a). The women in this investigation had a significantly higher mean HSR than did the men--82.61 versus 69.58, respectively. (See Table 4 , Appendix A.)

3. Relationship Between ACE and HSR

The relationship between ACE score and HSR is a far from perfect one. The correlation coefficient between the two is usually about .50 (Berdie et al., 1962a). For an unselect sample of Minnesota high school juniors, the correlation between ACE and HSR is about .59. For a select sample of CLA freshmen, the correlation is about .29. The correlation of .29 for CLA freshmen is understandably lower than the coefficient of .59 for Minnesota high school juniors due to the restriction in range of scores in the CLA group. Since students entering are selected on the basis of HSR and ACE percentile, the range of these variables is curtailed. Both ACE and HSR serve as "explicit selection" variables and, therefore, have a restricted range of scores for the selected entrants. Such a restriction in range effects correlation coefficients in the direction of making them lower than they would have been if an unselected group were allowed to enter the Liberal Arts College (Berdie et al., 1962b).

4. Prediction of College Success Using ACE and HSR

How well do the ACE and HSR predict "college success" at the University of Minnesota? Most available data define college success in terms of college grades (grade point average) and present correlations between ACE, HSR, and college grades. For CLA freshmen the correlation coefficients between ACE and first quarter or first year GPA tend to vary from .25 to .35; between HSR and first quarter or first year GPA, from .50 to .65. ACE and HSR do correlate significantly with college grades earned by Liberal Arts freshmen. HSR, in every instance, is the better predictor of college grades as measured by GPA for CLA freshmen (Berdie et al., 1962b).

Little data are available concerning ACE, HSR, and college success defined in terms of persistence at the University of Minnesota. Some data of a general nature are available concerning only superior or high-potential students in Minnesota. These data were part of Darley's (1962) studies of college persistence, which included the State of Minnesota as well as other states. The Minnesota follow-up study involved 29 out of 32 institutions of higher education in the state. These 29 institutions provided data for students who entered their institutions as new freshmen in September 1952. The terminal date for the information was set at the end of the fall quarter or semester of the 1956-57 academic year. Thus, the Minnesota study covered a period of thirteen academic quarters, or nine academic semesters, slightly more than four academic years. The study of persistence of high-ability college students in Minnesota was one part of the Minnesota study. Superior or high-potential students were defined as those high school graduates who were in the top quarter both in high school and on the college entrance test (ACE) score. This definition yielded a sample of 1,319 women and 1,273 men "who were clearly superior college risks." "The odds heavily favored successful outcomes of the college years" (Darley, 1962, p. 69).

Educational outcomes for these superior students entering the various types of institutions included outcomes for those who transferred to the University of Minnesota after original entry elsewhere. Most students in these groups did not transfer; students more frequently transferred in the group that ultimately succeeded and less frequently in the group that withdrew before graduation. Transfer also was more frequent for men. Transfer, within the successful group of women, was most frequent for those entering junior colleges and least frequent for those entering state colleges and Catholic colleges. Transfer, within the successful group of men, was most frequent for those who originally entered the junior colleges and least frequent for those who entered the private coeducational colleges. Four years after entry: (1) 60 percent of the women and 63 percent of the men had graduated or were still in residence in good standing; (2) 38 percent of the women and 33 percent of the men had withdrawn; and (3) 5 percent of the men and 1.5 percent of the women had failed. The most noticeable sex difference in holding power was in the state colleges, the private coeducational colleges, and the University's liberal arts college. In the state colleges the high-potential women more often graduated and less often withdrew, while the high-potential men showed the reverse pattern. But in the liberal arts colleges, the high-potential men tended to graduate with greater frequency than the high-potential women.

Another study (Faunce, 1966, 1967) of persistence among University of Minnesota students was conducted of 1,249 high ability women where "high ability" was defined as having total ACE percentile score of 80 or above plus an HSR of 90 or above. These women who entered the U of M in the fall quarter of 1950 through 1958 were followed up in 1966. The time of follow-up allowed for more than the usual four years for graduation; in fact, the time allowed ranged 16 years for those who entered in 1950 to 12 years for those who entered in 1958. Graduation with a baccalaureate degree from the University of Minnesota was achieved by 723, or roughly 58 percent of the 1,249 women; 526, or 42 percent, did not graduate from the University. The graduation rates each year, with one exception, tended to be higher than the nongraduation rates. The one exception was for women who entered the University in 1950; roughly 45 percent graduated, while 55 percent did not graduate. The women who entered in 1951 and in 1954 had the highest persistence rates--66 and 67 percent, respectively.

A representative sample of 98 of the nongraduates was followed-up to see, in part, if they continued their education elsewhere. Not all the women could be located; and of the 87 who were located, 81 (93%) responded to the follow-up request for information. Among these 81 located respondents, 59 percent had pursued no further education, 32 percent had some further education both academic and non-academic, and 8 percent had acquired a baccalaureate degree at another institution.

C. DEFINITION OF ACADEMIC ABILITY LEVELS

Each woman and man in this investigation was assigned to a high, middle, or low academic ability group on the basis of her or his total score on the ACE and the HSR. Thus, the definition of the ability levels took into account both scholastic ability and past achievement. (See Table 5 in Appendix A.)

High ability students had:

a total ACE percentile score at or above the 80th percentile and an HSR at or above the 90th percentile.

Middle ability students had either:

(1) a total ACE percentile score between 50 and 79, inclusive, plus an HSR between 50 and 89, inclusive;

(2) a total ACE percentile score at or above 50 plus an HSR between 50 and 89, inclusive; or

(3) an ACE score between 50 and 79, inclusive, plus an HSR at or above 50.

Low ability students had either:

(1) a total ACE percentile score at or below 49 plus an HSR at or below 49;

(2) a total ACE score at or below 49 plus an HSR at or above one; or

(3) a total ACE score at or above one plus an HSR at or below 49.

More women than men were classified as high ability, and more men than women were classified as middle and low ability. The majority of the total sample fell in the middle ability group, with low and high ability following in that order. (See Table 6 in Appendix A.) The percentage of women and men who were classified into each of the ability groups was as follows:

High ability: Women--27.3% Men--14.7%

Middle ability: Women--39.3% Men--42.6%

Low ability: Women--33.4% Men--42.8%

The frequency and percentage of ACE percentile scores are shown in Table 7 in Appendix A and of the HSR's in Table 8 in Appendix A for the varying ability women and men. Frequency polygons of the ACE percentile scores are presented in Figures 1 and 2 (Appendix A) and of the HSR's in Figures 3 and 4 (Appendix A) for the women and men of varying ability.

Mean ACE and HSR scores (see Table 9 in Appendix A) for the varying ability women and men were as follows:

	ACE	HSR
High women:	92.43	95.92
High men :	93.25	95.56
Middle women:	75.17	80.94
Middle men :	78.78	74.33
Low women:	33.26	73.66
Low men :	46.26	55.92

D. CRITERION STATUS: GRADUATE-NONGRADUATE

1. Definition of Criterion Status.

The criterion status, or dependent variable, in the investigation was "graduate" or "nongraduate". The status of graduate or nongraduate was defined in terms of degree work completed or not completed at the University of Minnesota.

Criteria for the "Graduate" status were:

a. The completion of all requirements for a baccalaureate degree from the University of Minnesota.

b. The specification on the official record that a baccalaureate degree was in fact conferred by the University of Minnesota.

Criteria for the "Nongraduate" status were:

a. All requirements not completed for a baccalaureate degree from the University of Minnesota.

b. No specification on the official record that a baccalaureate degree had been conferred by the University of Minnesota.

Included in the Graduate category were students who completed a degree (two-year) in the dental hygiene program and students who completed a degree (two-year) in the mortuary science program. Students who graduated from these two-year programs were included in the Graduate category because they also had attained an educational goal (i.e., degree), and their academic motivation seemed comparable to the motivation found in individuals completing a baccalaureate degree.

Both the Graduate and Nongraduate categories included students who left the U of M, transferred to another institution, and then returned to the U of M where they either did or did not complete a degree. The Nongraduate category also included students who never returned to the U of M during their undergraduate career and who may have transferred to another institution at which they may or may not have completed degree requirements. For such students who permanently withdrew from the U of M, it was impossible to determine from the records if they did in fact transfer to another institution. The University of Minnesota Office of Admissions and Records does not record transfers on the official record. Information is available only for students who transfer to another institution but then return to the U of M bringing with them their other institutional work to be applied toward a U of M degree.

2. Determination of Criterion Status.

The criterion status of graduate or nongraduate was determined from information recorded on the University of Minnesota undergraduate grade transcript. Transcripts were acquired from the U of M Office of Admissions and Records for every subject in the study.

In order to meet the requirements of the Graduate criterion status, an individual transcript had to contain the specific notation that a degree was conferred. For example, such a notation on the transcript might read:

Bachelor of Science
Granted: June 11, 1960
Major: Physical Science
Minor: Mathematics

or,

Bachelor of Arts
Magna Cum Laude
Granted: June 13, 1961
Major: Psychology
Minor: Sociology

If a transcript did not have such a notation, the person was considered a Nongraduate. This meant that it was possible for a person to have completed all the degree requirements with the exception of incompletes in one or two courses. Such a person, however, even if enrolled for X number of years, would not have been conferred a degree because of the incompletes; hence, she/he was a Nongraduate for the purposes of this study.

The investigation took into account the findings of studies (e.g. Ecklund, 1964) which show that students often take more than the standard four years in which to graduate. Each subject in the study had more than the standard four years in which to complete degree requirements. In fact, a good deal of time was available in which degree requirements could be completed. For instance, an individual could leave school for a period of time and return at a later date to continue course work.

The additional number of years beyond the standard four as well as the total number of years that were available in which to complete requirements and graduate with a baccalaureate degree is shown by entrance date in Table 10 (Appendix A). The additional time and total time were estimated up to the end of spring quarter 1969. The estimate did not include the two summer sessions of each year. The total amount of available time ranged from 19 academic years (for those who entered in the fall of 1958) to 11 academic years (for those who entered in the fall of 1950). Thus, at the time of this study an entering 1950 fall quarter freshman had 19 years in which to graduate (15 years of this time were in addition to the standard four years). A freshman entering in the fall of 1958 had available 11 academic years in which to graduate (7 years of this total time were in addition to the standard four years).

E. THE NONINTELLECTIVE VARIABLES

The nonintellective independent variables were personality characteristics. "Personality characteristics" were defined as those measured by the Minnesota Multiphasic Personality Inventory (MMPI). There were 13 personality characteristics.

The battery of tests routinely completed by entering College of

Liberal Arts students during freshman orientation includes a personality test. During the period covered by this investigation, 1950-1958, inclusive, the MMPI was the specific personality test included in the orientation test battery.

Of the 10,291 subjects, 6,492, or 63.1 percent, had completed the MMPI just prior to the start of their freshman year in the College of Liberal Arts and had valid profiles. Among the 4,633 women, 69.0 percent (3,197) had completed the MMPI and had valid profiles; and among the 5,658 men, 58.2 percent (3,295). (See Table 11 in Appendix A.)

1. Personality Characteristics: The MMPI

The Minnesota Multiphasic Personality Inventory was developed by Hathaway and McKinley in 1940 at the University of Minnesota "to assay those traits that are commonly characteristic of disabling psychological abnormality" (Hathaway & McKinley, 1951). It was developed originally as a clinical instrument to help in differential diagnosis, in broader personality evaluations, and in making decisions on the handling and treatment of patients in mental hospitals and psychiatric clinics. At the University of Minnesota it is used for counseling and screening purposes. The MMPI is useful as a device for screening students in need of further study and counseling in relation to personality adjustment. It is helpful as a diagnostic device following screening by other less elaborate inventories or after referral by other staff members to provide the counselor with some orientation to the nature and extent of the maladjustment. Moreover, the MMPI is useful in depicting significant facets of both the normal and the abnormal personality. This use is based on the commonly held assumption that the differences between the deviate and the normal person are differences of degree rather than kind (Drake & Oetting, 1959).

The Multiphasic was designed for use with older adolescents and adults who have had at least some formal education. When first published, the MMPI provided scores on nine "clinical" scales. Each of these scales consisted of items that differentiated between a specified clinical group and a normal control group of approximately 700 persons. The latter were all visitors at the University of Minnesota hospitals and represented a fairly adequate cross-section of the Minnesota population of both sexes between the ages of 16 and 55. The clinical group was composed of hospitalized patients, averaging about 50 in each diagnostic category. The scales were thus developed empirically by criterion keying of the items, the criterion being traditional psychiatric diagnosis (Anastasi, 1961; Super & Crites, 1962).

The MMPI consists of 550 self-descriptive statements (almost all are personally stated containing "I," "me," or "my") which the subject is to answer "true," "false," or "cannot say." The items are classified under 25 categories and range widely in content. The items cover such areas as health, psychosomatic symptoms, neurological disorders, and motor disturbances; sexual, religious, political, and social attitudes, educational, occupational, family and marital questions; many well-known neurotic or psychotic behavior manifestations such as obsessive and compulsive states, delusions, hallucinations, ideas of reference, phobias, sadistic and masochistic trends; and items designed to show whether the examinee is trying to describe himself in improbable good terms.

Test results are expressed in the form of T scores, or standard scores, with a mean of 50 and a standard deviation of 10. These standard scores are used in plotting profiles. Any score of 70 or higher--falling two standard deviations or more above the mean--is generally taken as the cutoff point for the identification of pathological deviations. The clinical significance of the same score, however, may differ from one scale to another. A T score of 75 on two different scales, for instance, may not indicate the same severity of abnormality.

Explanations of low points on the MMPI are less clear. Some evidence indicates that the occurrence of scores substantially below 50 may have diagnostic significance, but no systematic interpretations have been worked out as yet. In its regular administration, the MMPI now yields fourteen scores, including four validity scales, the nine original clinical scales, and a tenth clinical scale. Descriptions of the fourteen scales are provided below. These descriptions are primarily in clinical or pathological terms, since the MMPI was originally developed as a clinical instrument. Research on the MMPI with "normal" populations, however, has provided scale descriptions couched in nonpathological terms. These nonpathological descriptions are utilized in the discussion of the results of this investigation.

a. Validity Scales.

The four validity scales of the MMPI are entitled "Question," "Lie," "Validity," and "Correction or Suppressor." A special feature of the MMPI is its utilization of these four validity scales--?, L, F, K. These scales are not concerned with validity in the technical sense. In effect, they aid in the assessment of the operation of special response sets, malingering, and test-taking attitudes and provide checks on carelessness and misunderstanding as well. The validity scales are briefly described below. These descriptions are based on information from the following sources: Anastasi, 1961; Butcher, 1969; Carson, 1969; Dahlstrom, 1969; Dahlstrom & Welsh, 1960; Hathaway & Meehl, 1951; Meehl and Hathaway, 1946; Super & Crites, 1962.

(1) Cannot Say (?) Scale. Although handled like the other test components on the MMPI profile, this is not a scale in the usual sense. The instructions allow the respondent to decide that a given item does not apply to her or him or for some other reason is impossible for the respondent to answer. The number of these unanswered items constitutes the raw score on Cannot Say. Considerable consistency exists over time in the relative number of omitted items for normal subjects. A T score of 50 is equivalent to a raw score of 30 items or less. Two T score points are equal to each 34-35 items beyond the 30 item point. No significance is attached to raw scores of 30 or below; but in those fairly rare cases in which the score exceeds 30, and especially where it approaches

100 or more (T ≥ 70), it becomes essential to take into account its attenuating effect upon the profile. Hathaway and Meehl, in developing their "Atlas," excluded all profiles where the Cannot Say value exceeded T=70.

(2) L Scale. First introduced into the inventory as a basis for evaluating the general frankness with which subjects were answering the test, the L scale now has a number of interpretive implications. It is sensitive to a respondent's tendency to cover up and deny undesirable personal faults, especially when this dissimulation is gross and naively executed. Many respondents do not show their defensiveness in such a glaring manner, however, and do not feel compelled to deny the statements on the L scale, although their answers to many other items in the MMPI are affected by their self-defensive motives.

The L scale consists of 15 items selected on the basis of "face" validity to identify persons who attempt to give an overly perfectionistic view of themselves. The items refer to attitudes and practices which have a very positive valence culturally but which are actually found--if they occur at all--only in the most conscientious persons. Thus, each of the items making up the L scale presents a situation desirable socially but rarely true of the individual and thus unlikely to be answered in the favorable direction. For example, the behavior indicated in the items "I read all the editorials in the newspaper every day" or "I do not like everyone I know" might be generally considered desirable but is true of only a small percentage of the population. It has been recognized that very conscientious persons would frequently have more than the average number of these L items truly positive but for a person to have 6 or 8 of them has seemed almost impossibly good. The 15 items of this type scattered among the main body of the items constitute an effective method for the detection of anyone who wants to give an unusually good impression of herself or himself.

In the general population, the mean score of the L items lies between 3 and 5. A raw score of 6 or more is suggestive of rigidity and lack of personal insight, if not conscious deception, if it cannot be explained on the basis of occupation (e.g., clergy) or naivete associated with a culturally limited background. In the general population, scores above 6 occur with persons who, for one reason or another, have intense needs to present a good front. Thus, the responses they give on the L scale are not entirely the result of an artificial facade behind which they evade the test but in some important ways are a reflection of their own pervasive view of themselves, which includes a poor understanding of either the motives behind their own actions or the consequences of them. It is interesting that high scores have been found actually to predict underachievement. Very few individuals obtain raw scores of 7 or more (T score= 60), and the two or three percent level is at about 10 (T=70). An elevated L score is a frequent accompaniment of deliberate deception and distortion on the test. Thus, the positive rise of the L score has seemed quite valid as an indicator that the individual who completed the test has been dishonest. One of the most frequent consequences of an elevated L score is a "submerged" profile in which all the pathological limitations of the test items have been denied. In the development of their "Atlas," Hathaway and McKinley omitted profiles where the raw score L ≥ 10 (T ≥ 70).

(3) *F Scale*. The 64 items for the F scale were chosen because they were answered almost always in the same direction by the normal standardization group and rarely endorsed in the scored direction by that group. Item examples include "Everything tastes the same" and "I believe in law enforcement." Rarely does a person who is responding to the MMPI with the usual set to read the item and follow instructions, answer an F scale item in the scored direction. That the mean F raw score for normals is about 3, even though this is one of the longest of the scales, is easily understood. When a test subject approaches the task of responding to the MMPI items with a set different from the one common to the normal reference group, the score on the F scale reflects this difference. These atypical sets usually affect other scales in the test; they may often stem from and reflect important personality characteristics of the person. For these reasons, the role of the F scale in the evaluation of the profile is crucial. F should be one of the first scales considered.

At the low end of the F scale from a raw score of 0 to 4 can be grouped the profiles of persons relatively free of stress, as well as profiles produced by overly defensive persons who are taking great pains to cover up whatever emotional tension and distress they may be experiencing. Elevations on the L and K scales are helpful here in determining whether such defensiveness is affecting the F scale score. Low scorers are often described as sincere, calm, dependable, honest, simple, conventional, moderate, and as having narrow interests.

Scores ranging up to a T score just below 80 are more often a reflection of "validly" unusual characteristics and attitudes than an indication of invalidity in the rest of the profile due to deception, misunderstanding, etc. T scores in the range of 65 to just below 80 are indicative of unusual or markedly unconventional thinking and frequently appear in sullen, rebellious personalities of the schizoid, antisocial, or "Bohemian" type. Young people struggling with problems of identity and the need to define themselves by exhibiting nonconformity (the beard and sandals set) frequently score in this range on F. The profile in such cases is usually a valid one. Individuals having moderately elevated F scores are likely to be described as moody, changeable, dissatisfied, opinionated, talkative, restless, and unstable.

Raw scores much above 80 strongly suggest an invalid profile. Very high F scale elevations with raw scores from 16-20 are obtained from respondents who are resistive to the test and the assessment process, although they are usually produced by patients with frank psychoses. F raw scores above 20 should be scrutinized very carefully, since the possibility of a random or other deviant response set becomes more and more likely as the scores range above this point. Thus, profiles with F scores as high as 16 or above (T ≥ 80) cannot be accepted as representative, self-descriptive protocols but must be considered products of deviant response sets. As such, they are invalid profiles and should be omitted from most research work, as was done by Hathaway and Meehl in the construction of the "Atlas."

(4) The *Correction (K) Scale* was designed to function as a "suppressor variable," and is an important personality measure as well. It is employed

to compute a statistical correction factor, which is added to the scores on five of the clinical scales (Hs, Pd, Pt, Sc, and Ma) in order to obtain adjusted totals. The K scale also provides a measure of test-taking attitudes related to both L and F but believed to be more subtle.

The K scale consists of 30 items selected on the basis of their ability to identify "false negative" cases. Twenty-four of these items have been found to be highly correlated with Edwards' Social Desirability factor. Examples of K scale items are "Often I cannot understand why I have been cross or grouchy," "I find it hard to make talk when I meet new people," "I like to let people know where I stand on things."

The scale, in its present form, is the product of long efforts to devise empirically a scale to measure guardedness or defensiveness in test-taking attitude. In this sense K is seen as a "suppressor variable." It measures approximately what L was intended to measure, but it does so in a much more subtle and effective manner.

Evidence is increasing that the K scale is an important personality measure as well as a useful suppressor factor in statistical correction of some of the personality scales. That a person, in answering a personality inventory, may tend to behave in a defensive, lying, or self-deceptive way is a significant fact about him. Responses of high K score persons to both the K items and other MMPI statements cannot be attributed to a momentary, consciously-assumed way of viewing the MMPI. Rather the verbal behavior of these people seems to be part of a long-standing and deeply-ingrained view of themselves and others. The sources and nature of these personality characteristics leading to a high K score include self-acceptance, evasiveness and self-deception, high ego strength, and socio-economic status.

Evidence indicates a strong, positive relationship between K scores and self-acceptance. Thus, one of the reasons a subject answers items considered socially and personally desirable as true about himself is that he is quite satisfied with himself and has a view of himself that is distinctly accepting and favorable.

As for evasiveness and self-deception--the self-confidence and balance that is characteristic of subjects in the upper range of K scores helps them to hold the confidence of others and facilitate social amenities and social and professional intercourse; but in the special circumstances of an assessment procedure, these qualities may seriously interfere with appraisal. High K people may often be reserved in relating to an interviewer; they are difficult to approach, aloof, and unwilling to admit to fault in self, family, or in circumstances. This evasion may be selective--some very glaring difficulties may be admitted--but in matters that are marginal and subject to subtle rationalization, there is a tendency to minimize, to tone down, to smooth over. For them hatred may be admitted as "not liking," fears take the form of "uneasiness" or being "bothered about," and extreme positions on almost any point are eschewed.

K values of counseling and psychiatric cases typically rise after successful treatment. Initial values on K may bear a relationship to the way an individual reacts to help or treatment and the amount of benefit he receives from it. These relationships can be described in terms of the concept of ego strength or the concept of self-maintenance. Thus, some elevation is seen as desirable prognostically (T = 55 to 65). In this range it suggests adaptiveness and the availability of ego resources.

Some of the variance in the K scale is related to status in social and economic hierarchies. The implications of a given K score should be determined in the context of what is known about the subject's age, educational experience, occupational history, income, and family background. When an elevation of 55 to 60 T score points is obtained from a college student, this may be considered typical and not necessarily a product of a conscious set to deceive or cover up. However, when the K values for these students range upward to the high sixties or low seventies, the possibility increases that they are responding in a special defensive manner. The general elevation on K that characterizes college students still reflects defensiveness, but it should be viewed as part of a general self-concept in which self-enhancement and personal reserve are but a part.

Butcher has suggested that profiles where the K scale has a T ≥ 70 (raw score ≥ 23) be omitted from any research analyses. Very high K scores, over 25 raw score points (T ≥ 74), indicate a high degree of defensiveness and reveal extreme facades of adequacy and freedom from personal defects. Such a facade is a hindrance to both adequate personal insight and effective appraisal. These subjects may cover up even physical deficiencies and symptoms in interviews with a physician, which leads to difficulties in routine medical examinations. High K scorers are people who cannot tolerate any suggestion that they are insecure, that they have difficulties in social relations, or that they may not have their lives well-ordered and controlled. They are intolerant and unaccepting of unconventional or nonconforming behavior in others. Markedly concerned about their own social stimulus value, they are nevertheless relatively without insight concerning their effect upon others. In a counseling situation they show much hesitance and a great desire to ensure confidence and approval. Interestingly, high K is associated with low expectancy of delinquency in adolescents, especially females.

Moderate elevations on K are found in people described as enterprising, ingenious, resourceful, sociable, reasonable, enthusiastic, and as having wide interests.

A low K score also can be used as a measure of test-taking attitude seen as an exhibition of personal defects and troubles. A low K is usually accompanied by caustic manners, suspicion of the motivations of others, and exaggeration of the ills of the world. Low K scorers have been described as awkward, cautious, peaceable, high-strung, cynical, dissatisfied, and individualistic.

b. Clinical Scales.

The original nine clinical scales are:

1. Hypochondriasic (Hs).
2. Depression (D).
3. Hysteria (Hy).
4. Psychopathic deviate (Pd).
5. Masculinity-femininity (Mf).
6. Paranoia (Pa).
7. Psychasthenia (Pt).
8. Schizophrenia (Sc).
9. Hypomania (Ma).

A tenth clinical scale, *Social Introversion* (Si), was developed by L.E. Drake (1946) and is now routinely included in the MMPI profiles with the code number "0."

Scale 1, *Hypochondriasis (Hs)*, the first published MMPI scale, attempts to measure the personality characteristics related to the neurotic pattern of hypochondriasis. Persons diagnosed with this disorder show an abnormal concern for their bodily functions; their worries and preoccupations with physical symptoms typically persist in the face of evidence against any valid physical infirmity or defect. Worry over their health dominates their life and often seriously restricts the range of their activities and interpersonal relations. The classic picture of hypochondriasis also includes egocentricity, immaturity, and lack of insight into the emotional basis for their preoccupations with somatic processes.

The items that differentiate hypochondriasis from normal subjects range over a variety of bodily complaints. They are not restricted to any particular part of the body or kind of function. The items include generalized aches and pains, specific complaints about digestion, breathing, thinking, vision, and sleep, as well as peculiarities of sensation. A few of the items relate to general health or competence.

Scale 2, *Depression (D)*, was established to measure the degree or depth of the clinical symptom of depression. This mood state is characterized generally by pessimism of outlook on life and the future, feelings of hopelessness and worthlessness, slowing of thought and action, and frequently by preoccupation with death and suicide. Depression may also accompany a variety of other psychiatric disorders or may complicate personality patterns of almost any kind. Elevations on scale 2 are important in a wide variety of personality reactions. Scores on this scale also serve as sensitive reflectors of current mood.

Scale 2 items reflect depressive mood changes on a neurotic basis and are, in many ways, in accord with general expectations about the clinical manifestation of psychiatric depression. The items deal with a lack of interest in things expressed in general apathy, in a rejection of base impulses, and in a distinct denial of happiness or personal worth. They describe a feeling of being incapable of performing work satisfactorily or controlling one's thought processes. Another cluster of items, indicating physical symptoms, sleep disturbance, and gastrointestinal complaints, is not generally considered part of the depression syndrome; but these features can very frequently be observed in markedly depressed psychiatric patients. The excessive sensitivity and lack of sociability shown in the items can also be seen in their behavior (Dahlstrom & Welsh, 1960).

Scale 3, Hysteria (Hy), was developed to aid in the identification of persons using the neurotic defenses of the conversion form of hysteria. This scale describes individuals who, in contrast to hypochondriacs, were characterized by having relatively limited, relatively well-circumscribed physical complaints of the conversion type, so-called conversion symptoms such as loss of speech, loss of hearing, and paralysis of the limbs. Included also were individuals who manifested primarily severe anxiety states with gastro-intestinal disturbances, cardio-respiratory symptoms, disturbances in the genital-urinary area, and the like (Schofield, n.d.). Such persons appear to use physical symptoms as a means of solving difficult conflicts or avoiding mature responsibilities. This resort to physical disorder may appear only under stress, while in ordinary circumstances no clear personality inadequacy is readily demonstrable.

Many of the Scale 3 items seem to be mutually contradictory. Broadly, the items fall into two categories: somatic items and social facility items. Some of the somatic items are specific in bodily references, such as head, eyes, and chest. A few items describe tensions, fears, and worries. In contrast, there are a number of items that involve denial of any troubles. These may be denials of inadequacies, of base impulses, and of sensitivity in social situations. Many items demonstrate a protest that other people are trustworthy, responsible, and likable.

Scale 4, Psychopathic deviate (Pd), was developed to measure the personality characteristics of the amoral and asocial subgroup of persons with psychopathic personality disorders, termed psychopathic deviates. Major features of this personality pattern include a repeated and flagrant disregard for social customs and mores, an inability to profit from punishing experiences as shown in repeated difficulties of the same kind, and an emotional shallowness in relation to others, particularly in sexual and affectional display. The Pd person is relatively free of conflicts and does not show anxiety until actually in serious difficulty. Consequently, the psychopathic deviate may go undetected by friends and acquaintances until the situation demands evidence of a sense of responsibility, appreciation of social patterns, or personal and emotional loyalties. As in the case of the conversion hysteric, between stress situations it may be difficult to identify the psychopathic deviate between one outbreak and another without some personality measure.

The content of Scale 4 items ranges widely, reflecting the alienation of the person from the family and the extension of difficulties to school and to authorities generally. Some of the items involve frank admission of personal limitations, poor morale, and sexual troubles. At the same time, reminiscent of some of the contradictions in Scale 3, there are also items involving denial of social shyness and assertions of social poise and confidence (Dahlstrom & Welsh, 1960).

Scale 5, Masculinity-femininity (Mf), is essentially a masculinity-femininity measure and tends to be a good measure of interest. Scale 5 was originally designed to identify the personality features related to male sexual inversion. The scale does not do this very well, however, unless the T score is quite high. Scale 5 is not as clearly a clinical scale as is true of the other scales in the Multiphasic, although a small group of psychiatric patients was involved in its construction. The criterion group for Scale 5 consisted of a small sample of true male homosexual inverts; individuals who had shown homosexual inclinations in their general psycho-sexual development from an early age; individuals who, though male sexually, had been consistently feminine in their interests, hobbies, attitudes, likes, and dislikes throughout most of their life; individuals who had not at any time established heterosexual behavior; and further, individuals who had evidence of overt homosexuality. In addition to developing a scale which would discriminate this group from heterosexual males, items were further evaluated for inclusion in the scale only if they differentiated heterosexual females from heterosexual males. The responses, consequently, which are scored on the Mf scale are typical responses, not only for the feminine male, for the true male invert, but also for the heterosexual female. As with all the other scales, the relationship between the raw scores and T scores for the males on this scale is a directly positive one. The higher the individual's score, the higher his corresponding standard score. In order to keep the profile consistent in the sense of having higher T scores represent "deviation," the T score norm for the female is simply reversed with respect to raw score so that the higher the raw score the female makes, the lower the T score. In other words, the greater number of items she answers in the direction typical of heterosexual females and feminine males, the less elevated T score she gets. A high score on Scale 5 for a female means, in contrast to all the other scales, that she is answering fewer items in the scored direction and, consequently, is expressing less femininity (Schofield, n.d.). Although the scoring is almost completely reversed for the two sexes, no simple reversible interpretation appears adequate.

The content of the items in Scale 5 is heterogeneous, ranging over interests in kinds of work, hobbies and pastimes, social activities, religious preferences, and family relationships. There are also items on fears, worries, and personal sensitivities. One important feature of this scale is the amount of frankly sexual material in the items. The items can be divided into five clusters which serve to characterize the content areas on this scale. The five clusters deal with ego sensitivity, sexual identification, altruism, endorsement of culturally feminine occupations, and denial of culturally masculine occupations.

Scale 6, Paranoia (Pa), was developed to evaluate the clinical pattern of paranoia, a diagnostic evaluation seldom used by itself but frequently applied as a modifier of some other personality reaction. The concept of paranoia involves a set of delusional beliefs, frequently including delusions of reference, influence, and grandeur. Although persons showing these personality features may appear to be well oriented to reality and integrated in the relation of one delusion with another in their belief structure, they may show imperceptions or misinterpretations of their life situations that are markedly out of keeping with their ability and intelligence. These paranoid characteristics may appear in schizophrenics or those with depressive reactions, more rarely in otherwise intact persons, and may be either temporary and reversible or long-standing and progressively more convoluted and involved (Dahlstrom & Welsh, 1960). Scale 6, because of the nature of the personality type which it seems to measure, is one of the less successful scales of the Multiphasic. The very nature of the disorder, with its pervasive suspiciousness and interpersonal sensitivity, involves the sort of attitudes toward tests and diagnostic appraisals that frustrate most of the conventional methods of personality study. Scale 6, like the Hs scale, consists for the most part of very obvious items and, consequently, items which are rather easily avoided by the individual who does not wish to appear peculiar. Thus, if the Pa scale is not elevated, the possibility of paranoia cannot be ruled out (Dahlstrom & Welsh, 1960; Schofield, n.d.).

The Scale 6 items provide further insight into these difficulties of evasion and defensiveness. Some of the items that work to separate criterion cases from normal ones are frankly psychotic items that are consistent with textbook descriptions of this disorder: mental peculiarities, delusional and referential material, and the belief that unwarranted pressure has been placed upon them. Some of the items, however, are less clearly a part of this syndrome. Such items involve the admission of a psychological fragility that seems out of keeping with the facade of perfection those persons often assume. In addition, there are some items that could be expected to have significance in differentiating the paranoid personality but which are answered in the unexpected direction, such as the item "Most people will use somewhat unfair means to gain profit or an advantage rather than lose it." (False.)

Scale 7, Psychasthenia (Pt), was devised to help in the evaluation of the neurotic pattern of psychasthenia, of the obsessive-compulsive syndrome. Personality features included, in addition to the obsessive ruminations and compulsive behavioral rituals, are some forms of abnormal fears, worrying, difficulties in concentrating, guilt feelings, and excessive vacillation in making decisions. Other frequently noted features include excessively high standards of morality or intellectual performance, self-critical or even self-debasing feelings and attitudes, and assumption of rather remote and unemotional aloofness from some personal conflicts. Although the term "psychasthenia" is no longer in use, the pattern of neurotic reaction is an important and persistent feature of many psychiatric disorders.

The content of Scale 7 items appears to reflect a characteriological belief for a vast variety of specific psychasthenic symptoms. The items cover such things as anxiety and dread, low self-confidence, doubts about one's competence, undue sensitivity, moodiness, and immobilization (Dahlstrom & Welsh, 1960).

Scale 8, Schizophrenia (Sc), attempts to measure deviation, particularly in mentation and self-concepts, we well as in behavior found to be typical of the schizophrenic. The psychotic pattern of behavior for which the scale was derived is very heterogeneous and contains many contradictory behavioral features. This may be a result of the way that the pattern is identified in terms of bizarre or unusual thoughts or behavior. Most commonly, persons showing this psychotic reaction are characterized as cold, constrained, and apathetic or indifferent. Other people see them as remote and inaccessible, often seemingly sufficient unto themselves. Delusions of varying degrees of organization; hallucinations, either fleeting or persistent and compelling; and disorientation may appear in various combinations. Inactivity, or endless stereotypy, may accompany the withdrawal of interest from other people or external objects and relationships. These people frequently perform below the level expected of them on the basis of their training and ability (Dahlstrom & Welsh, 1960; Schofield, n.d.).

Many of the Scale 8 items reflect the bizarre mentation, the social alienation, the peculiarities of perception, and the feelings of persecution included in the classic description of schizophrenia. There are also items which reflect poor family relationships and lack of deep interests, which are a part of the basic syndrome. Scale 8 includes one of the largest subset of items dealing with sexual matters. There are also items dealing with difficulties in concentration and impulse control. A little out of keeping with clinical expectations are some items concerning fears and worries and those that show the degree to which life is a strain.

Scale 9, Hypomania (Ma), was derived to measure the personality pattern of the affective disorder, hypomania. Three features characterize this pattern: overactivity, emotional excitement, and flight of ideas. The activity may lead to a great deal of accomplishment but is frequently inefficient and unproductive. The mood may be good-humored euphoria but may, on occasion, be irritable; and temper outbursts are frequent. The enthusiasm and overoptimism characteristic of persons with this pattern may lead them into undertaking more than they can handle, although the milder forms of hypomania may be difficult to distinguish from the behavior of ambitious, vigorous, and energetic normals. Some of the behavior resulting from hypomania may be easily confused with psychopathic patterns, and there are some important instances of combinations of both patterns in the same persons. The transitory nature of the hypomanic pattern makes it difficult to derive personality scales to measure it and evaluate it.

Items in Scale 9 cover a wide range of content. Many of the classic features of hypomania patients are apparent in the self-descriptions which appear in the items: the grandiosity, the excitement, and the activity level. Other items are less obviously related to the general syndrome, such as many items that bear on moral attitudes and home and family relationships and some items that refer to physical and bodily matters (Dahlstrom & Welsh, 1960).

Scale 0, Social Introversion (Si), was derived and cross-validated on students in the guidance program at the University of Wisconsin in order to measure a characteristic thought to be important in college adjustment and which did not appear to be measured directly by any of the original scales. Patterns included in this scale have been found to be related to various aspects of social adjustment in college. Persons with high scores on Scale 0 show introvertive characteristics, especially shyness, social insecurity, and social withdrawal (Drake & Oetting, 1959).

In addition to Scale 0 items with face validity that describe a person's uneasiness in social situations or in dealing with others, there are items covering a variety of special sensitivities, insecurities, and worries. A high scorer on Scale 0 also denies many impulses, temptations, and mental aberrations. The conservative nature of many of the replies is striking, and a strong self-depreciatory trait is evident (Dahlstrom & Welsh, 1960).

F. THE HYPOTHESES

The investigation explored two general hypotheses concerning the influence of the nonintellective variables of personality characteristics on the criterion status of Graduate or Nongraduate from the University of Minnesota.

1. The personality characteristics of varying ability women and men college Graduates do not differ.
2. The personality characteristics of varying ability women and men college Nongraduates do not differ.

G. ACADEMIC INFORMATION

To provide a somewhat more comprehensive picture of the subjects in terms of their academic careers at the University of Minnesota, certain additional academic information was included in this study. These items of information were:

1. Grade point average.
2. Major field of study at time of graduation/withdrawal.
3. College of enrollment at time of graduation/withdrawal.
4. Degree obtained.
5. Graduation with honors.
6. Number of quarters of academic attendance.
7. Contact with the Student Counseling Bureau.

The first six items of information were obtained from University of Minnesota transcripts acquired from the Office of Admissions and Records for every subject in the study. The seventh item of information was obtained from the records of the U of M Student Counseling Bureau.

1. Cumulative Grade Point Average

The cumulative grade point average (GPA) was calculated for each subject. Cumulative grade point averages were calculated up through the quarter of graduation for those who graduated from the U of M and up to the time of departure from the U of M for the subjects who had not graduated.

All academic work completed at the U of M as well as at other institutions, if it was recorded on the U of M transcript, was included in the GPA. Inclusion of transfer work in the GPA seemed to be a more accurate indication of an individual's academic achievement as compared to using only completed U of M courses.

The GPA was based on a four-point numerical assignment of:

4 for a grade of A
3 for a grade of B
2 for a grade of C
1 for a grade of D
0 for a grade of F

Only those credits in courses which were completed with these grades were included in the GPA calculations; courses with "Incompletes" were not included.

2. Major Field of Study

The major field of study, as indicated on the U of M transcript, was tabulated for each subject. Major fields of study were clearly noted on the transcripts at the time of graduation for those who graduated. Among those who did not graduate, some did not have a major field noted on the transcript, while others had several major fields. For these latter subjects, the major field that appeared to be most recent was tabulated.

3. College of Enrollment

The college of enrollment was tabulated for each subject. While a large number of students who enter CLA do so to pursue a liberal arts college major, others enter CLA to satisfy the pre-professional requirements of other majors,(e.g., education, business administration, physical and occupational therapy, medical technology, medicine, dentistry, pharmacy, nursing, etc.) and still others change their educational goals and transfer to another college, such as home economics, engineering, forestry, and the like. Therefore, the college of enrollment, as indicated on the U of M transcript at the time of graduation, was tabulated for the graduates; and the college of enrollment at the point of withdrawal from the U of M for the nongraduates.

4. Degree Obtained

The baccalaureate degree obtained by each subject who graduated was tabulated. In general, only one bachelor's degree was recorded. If an individual earned a second bachelor's degree a year or so following the first degree, the second baccalaureate degree was not tabulated, as this kind of academic motivation seemed more equivalent to the motivation found in individuals pursuing a post-graduate degree; and the focus of the investigation was persistence to a baccalaureate degree. However, if an individual obtained two baccalaureate degrees at the same time (such as through the combined CLA-Education program), both degrees were tabulated. Also not recorded explicitly for the graduates were the two-year degrees earned during the process of completing a bachelor's degree, e.g., such degrees as the Associate of Liberal Arts (ALA) degree from CLA and the Associate of Arts (AA) degree from the General College. Again, two-year degrees were not recorded for graduates, as the major focus for the investigation was the baccalaureate degree.

One and two-year degrees or certificates were tabulated for nongraduates in order to acquire some idea of their accomplishments while they remained in school.

5. Graduation With Honors

Graduation with or without "Honors" was tabulated for each subject who graduated from the University of Minnesota. Five possible honors, depending on the college or curriculum, are awarded at the point of graduation from the University of Minnesota. The College of Liberal Arts and the University College confer three honors: summa cum laude, magna cum laude, and cum laude. Two honors, high distinction and distinction, are conferred by other colleges and curriculum, such as education, home economics, business administration, nursing, medical technology, occupational therapy, physical therapy, and the Institute of Technology. The qualifications for graduation with honors vary from one college or curriculum to another.[3] In all of these, however, graduation with honors indicates high-level academic performance in terms of grade achievement.

6. Number of Quarters of Academic Attendance

The number of quarters of academic attendance, as shown on the University of Minnesota transcript, was tabulated for each subject. Attendance was tabulated up to and including the quarter of graduation from the University for subjects who graduated; and up to and through the quarter of departure from the University for subjects who did not graduate.

Certain considerations and decisions were necessary prior to the tabulation. While all of the subjects began in CLA, some of them eventually transferred to other colleges or schools (e.g. College of Education, School of Home Economics) within the U of M. Each U of M college and school vary in their regulations concerning the minimum and maximum number of credits for which a student should and may register in any one quarter. For instance, one college may require that a student carry a minimum of 12 to a maximum of 17 credits per quarter, with exceptions to the regulation obtainable through special permission. Another college may have no minimum and maximum per quarter requirements. Consequently, with these variations the number of credits carried within any one quarter by a student is influenced both by the student's desire and by the college in which the student is enrolled. Most students, however, regardless of their curriculum, tend to carry between 12 and 17 credits per quarter, with an average of 15 credits.

Students may, for one reason or another, sometimes attend one or both summer sessions at the U of M. For instance, a portion of the nursing curriculum is scheduled during both summer sessions; hence, nursing students are required to attend. By comparison, students in other fields of study may wish to "pick up" or to "make up" additional credits and choose to do so during the summer. Each summer session is five weeks in length. Generally, nine to ten credits is the required maximum per session; but no minimum requirement exists. Two summer sessions are sometimes considered equivalent to one quarter, depending on the completed number of credits.

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[3] Refer to specific U of M college bulletins for detailed information concerning the requirements for graduation with honors.

Students occasionally take courses in the Extension Division or through the Correspondence Division of the U of M. Any course work for degree credit that is completed may, upon request by the student, be transferred to the record of regular instructional course work and be applied toward the student's degree.

Some students occasionally transfer to other academic institutions, complete any number of credits of course work, and then transfer back to the U of M. Students, between regular quarters at the U of M, may also attend summer session(s) at other academic institutions. Acceptable course work, in both cases, may be transferred to the U of M, recorded on the transcript, and applied toward the degree.

Students who leave the University may do so at any time. Some may leave after the completion of any given quarter and never return. Others may withdraw any time during a given quarter. These latter students generally would have recorded on their University transcript the date of official cancellation as well as "W's." (W indicates withdrawal from a course without a grade.)

These above kinds of facts and considerations made it necessary to develop a set of rules to aid in the tabulation of the quarters of academic attendance. A list of these rules follows.

a. Attendance and completion of course work during any fall, winter, or spring quarter at the U of M day school, regardless of the number of credits, was considered equivalent to one quarter.

b. Attendance and completion of course work during one summer session at the U of M, regardless of the number of credits, was equivalent to half a quarter.

c. Attendance and completion of course work during two summer sessions at the U of M, regardless of the number of credits, was equivalent to one quarter.

d. Degree credits of course work completed in the Extension Division or the Correspondence Division of the U of M and/or transfer credits from course work completed at other academic institutions were tabulated according to the following schedule:

Completed Credits	Equivalent Number of Quarters
1 through 5	None
6 through 11	One-half
12 through 17	One
18 and above	Number of credits ÷ 12 All remainder = one-half quarter

e. Any "Incompletes" (I's) were considered as being in attendance. That is, a quarter with Incompletes was tabulated as a quarter of attendance. If an individual had all Incompletes, or some Incompletes and some grades during any given quarter, this indicated that the individual was officially enrolled; and, therefore, the quarter was tabulated as a quarter of attendance.

f. The quarter during which an individual withdrew from the U of M was not considered as a quarter of attendance. That is, if an individual officially withdrew from the University some time during a quarter or a summer session, indicated on the transcript by the date of cancellation and usually "W's," then this quarter was not included in the attendance tabulation.

7. Contact with the Student Counseling Bureau

"Contact" or "no contact" with the Student Counseling Bureau (SCB) at the University of Minnesota was tabulated for each subject. Information as to the occurrence of contact was obtained from SCB records. A folder containing such information as test scores is compiled for the majority of students who have some contact with the Counseling Bureau, and a file number is assigned to and recorded on the folder as well as on the student's basic information card (Form #20). The existence of a file number on the Form #20 was used as the basis of tabulation of "contact" (or "no contact") with the Counseling Bureau. Thus, a tabulation of "contact" indicated that a subject had an SCB file number on his basic information card, which in turn indicated that he had some contact with the Counseling Bureau. A tabulation of "no contact" meant the absence of a file number, which indicated no contact with the Counseling Bureau.

The focus of the study was on contact while an undergraduate. A limitation in this aspect of the investigation was that it was impossible to discern whether or not the initial contact was made while a subject was an undergraduate, or while a graduate if they attended the University Graduate School or a professional school. The records on all the "contact" students would have had to be studied, with special permission from SCB, in order to discern as to when the initial contact had occurred. Since such a study would have involved a substantial amount of time for which research assistance was not available, the task was not undertaken.

However, according to SCB records the vast majority of SCB contacts are initiated by undergraduates; and, therefore, it could be fairly comfortably assumed that the majority of contacts tabulated for this investigation were initiated when the students were undergraduates.

The following list briefly describes the major kinds of contacts with the Counseling Bureau for which a folder would be compiled and a file number assigned.[4]

a. Counseling contact includes such counseling as educational, vocational, personal, and marriage. Any testing completed as part of the counseling is also included in this category. The majority of contacts with SCB tends to fall in this counseling (and testing) category.

b. Reading and Study Skills Center contact includes helping the student in the development and improvement of skills in such areas as reading and study methods. Any relevant testing also is included.

c. "Psychology Testing" contact. Students who wish to major in psychology at the University are requested by the Psychology Department to complete a battery of tests administered in the testing unit of SCB. Test scores are reported by SCB to the Psychology Department and also filed in a folder compiled for the student.

d. Miscellaneous contact includes students (1) who wish to see their results on Freshman Orientation tests; on admission test batteries for education, business administration, medicine, etc.; and (2) who have general questions about the University, job seeking, etc. for which they seek information.

H. SUMMARY OF THE PROCEDURES

The purpose of the investigation was twofold: (1) to explore the affect of personality characteristics on the college persistence of women and men of high, middle, and low ability; and (2) to describe the women and men of varying ability in terms of certain academic variables.

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[4] Personal communication with Dr. Theda Hegenah, Director of the Student Counseling Bureau.

The subjects included 4,633 women and 5,658 men who entered the U of M College of Liberal Arts as new freshmen in the fall quarter of the years 1950-1958, who had an ACE score and HSR at the time of admission, and who had a U of M undergraduate transcript of courses and grades.

Each woman and man was assigned to a high, middle, or low academic ability group on the basis of her or his total score on the ACE and the HSR. High ability students had total ACE percentile scores at or above 80 and HSR's at or above 90; Middle ability students had either: (1) an ACE percentile score between 50 and 79, inclusive, plus an HSR between 50 and 89, inclusive; (2) an ACE percentile score at or above 50 plus and HSR between 50 and 89, inclusive; or (3) an ACE score between 50 and 79, inclusive, plus an HSR at or above 50; Low ability students had either: (1) an ACE score at or below 49 plus an HSR at or below 49; (2) an ACE score at or below 49 plus an HSR score at or above one; or (3) an ACE score at or above one plus an HSR at or below 49. Classified as High ability were 27.3% of the women and 14.7% of the men; as Middle ability, 39.3% of the women and 42.6% of the men; and as Low ability, 33.4% of the women and 42.8% of the men.

The criterion status, or dependent variable, in the investigation was "graduate" or "nongraduate". Criteria for the "Graduate" status were: (a) The completion of all requirements for a baccalaureate degree from the University of Minnesota; and (b) The specification on the official record that a baccalaureate degree was in fact conferred by the University of Minnesota. Criteria for the "Nongraduate" status were: (a) All requirements not completed for a baccalaureate degree from the University of Minnesota; and (b) No specification on the official record that a baccalaureate degree had been conferred by the University of Minnesota.

The nonintellective independent variables were 13 personality characteristics defined as those measured by the Minnesota Multiphasic Personality Inventory (MMPI). Subjects completed the MMPI during freshman orientation. Of the 4,633 women, 69.0% (3,197) had completed the MMPI and had valid profiles; and of the 5,658 men, 58.2% (3,295).

The investigation explored two general hypotheses concerning the influence of the nonintellective variables of personality characteristics on the criterion status of Graduate or Nongraduate from the University of Minnesota. The personality characteristics do not differ between: (1) varying ability women and men Graduates; and (2) varying ability women and men Nongraduates.

Additional academic information was included in this study to provide a more comprehensive picture of the subjects in terms of their academic careers at the University of Minnesota: (1) Grade point average; (2) Major field; (3) College; (4) Degree; (5) Honors; (6) Number of quarters of academic attendance; and (7) Contact with the Counseling Bureau.

CHAPTER IV

ANALYSES

Described in this chapter are the electronic data processing procedures, tests of the major hypotheses concerning personality characteristics and persistence, and analyses of the descriptive academic variables.

A. ELECTRONIC DATA PROCESSING PROCEDURES

Information for each subject was keypunched on IBM data cards with one card per person. Coding instructions and a sample coding brief used for coding the data and keypunching are contained in Appendix B.

These data were processed by electronic data processing equipment at the University of Minnesota Computer Center. Use was made of the 6600 computer complex.

The "Statistical Package for the Social Sciences" (SPSS) was used to analyze the data. SPSS was used to generate descriptive statistics, frequency and percentage distributions, and chi-square analyses. A program developed by a staff member of the University Measurement Services Center was used to perform the Z-test of significance of differences between proportions.

B. TESTS OF THE MAJOR HYPOTHESES: MMPI ANALYSES

Mean difference tests, chi-square analyses, and tests of differences between proportions were performed in order to test the major hypotheses of no difference in personality characteristics between varying ability female and male college Graduates and Nongraduates.

The chi-square analysis was prompted, in part, by the fact that some investigators (Drasgow and McKenzie, 1958) have found that the computing of means and sigmas in the usual search for group differences conceals other more statistically significant findings. Significant findings have often been discovered using the chi-square technique. For instance, Drasgow and McKenzie (1958) found that while 75 percent of the members of a nongraduate group had at least one MMPI scale equal to or greater than a T score of 70, only 25 percent of the members of a graduate group had scores this high. The chi-square was significant well beyond the .001 level. These results suggested to Drasgow and McKenzie that if a student's MMPI contained elevated scores, the probability of graduation was lowered.

Use of the chi-square technique also was prompted by the fact that chi-square can be used to test difference of distributions for any data which can be divided into nominal categories and for which the requirements of a sufficient number of expected frequencies are met (Edwards, 1946; Ferguson, 1959; McNemar, 1955; Walker & Lev, 1953). McNemar (1955) states that "The quantity chi-square ... is a statistic which is very useful in a variety of problems involving frequencies." He points out the use of chi-square as a means of testing hypotheses and the advantages of chi-square over percentage comparisons. The chief situations for which it is permissible to use chi-square are classified into three types by McNemar. The type most pertinent to this investigation was the

> ...contingency-type situation which involves classification into categories for one variable vs. classification into ordered groups for the other, or one unordered grouping vs. another. The fundamental problem is apt to be that of comparing 2 or more groups with regard to multiple responses; i.e., we want a test of the difference between groups rather than a measure of correlation, which would not be entirely meaningful except in the loose sense that a particular response is associated more often with a particular group (pp. 223-224).

The calculation of chi-square from a table with 2 rows and k columns (or 2 columns and k rows) is discussed and illustrated (Table 32, p. 223) by McNemar (1955) for two groups classified according to five response categories. The resultant chi-square in the illustration yielded a probability (P) value of .16. In other words, once in six trials differences as large as those shown in Table 32 would occur by chance; hence, insufficient evidence existed for concluding that the universes from which the two samples were drawn differed in regard to their responses to the asked question. McNemar goes on to point out that if one had to depend on a test of differences in proportions technique for testing the significance of the group differences in Table 32, five critical ratios (CR) would result--for each category there is a possible difference in proportions or percentages with a standard error for each difference.

> The 5 CR's might, and usually would, lead to 5 different P values with a consequent predicament as to interpretation. Offhand, it might be argued that, if any CR or P so determined reached an acceptable level of significance, one would be justified in concluding that the difference between the groups was real rather than chance. That such an argument may be fallacious is well illustrated by the data of Table 32, which are actual data. When these data first came to the author's attention, the table was in percentage form with a CR worked out only for the category showing the largest difference. This CR... was 2.54 which is near the P = .01 level of significance, and it had accordingly been concluded that a real difference had been found. Now, when we consider the chi-square probability or P of .16 for the overall comparison, we are not justified in placing

> much confidence in such a conclusion (McNemar, 1951, p. 234.

Why the apparent inconsistency between two tests of significance? McNemar explains that because most investigators are looking for group differences rather than group similarities, there is the tendency to single out a category for comparison not because of intrinsic a priori interest in that category but because it happens to yield the largest difference. By this a posteriori selection one tends to capitalize on differences which may be large mainly as a result of chance. He then emphasizes that,

> before any one difference is tested, an overall test of significance should be applied. If this overall test yields a significant P, then and only then is one justified in proceeding to an examination of single categories. Thus the use of X^2 for such situations ... not only provides an overall single index of significance but also helps to avoid false conclusions (p. 234).

McNemar also discussed the application of chi-square to k by 1 tables. The illustration provided (Table 33, p. 235) contained a contingency-type table involving three groups placed in an ordered series for amount of education: I grammar school, II high school, III college, and three possible opinion responses with respect to motivation of conscientious objectors: 1. Not cowards, 2. Partly cowards, and 3. Cowards. To test the significance of the differences in proportions technique would have involved comparing the percentages for group I vs. II, I vs. III, and II vs. III, for each of the three responses--a total of nine CR's. McNemar pointed out that while there is no short-cut formula for computing chi-square for such a table, its calculation is far quicker than the determination of nine CR's. Computation yielded a chi-square = 36.58 which for df = 4 was double the value of the chi-square needed for the P = .001. Hence, Table 33 data as a whole exhibited highly significant differences between the groups.

That a better understanding of the extent of the differences could be achieved by considering the percentages given in Table 33 was elaborated on by McNemar. Membership in group III (college) indicated a greater tendency to the "not cowards" response. Group I (grammar school) tended more to give the "cowards" response. Thus, the association shown in Table 33 was in the direction of less disparagement of conscientious objectors by those in the higher educational level. The strength of association or degree of correlation was represented by a contingency coefficient (C) of .33 which was rather low in light of the highly significant chi-square P. This illustrated McNemar's point that high statistical significance and a high degree of association are far from synonymous. Consideration of Table 33 data readily indicated the difficulty of predicting responses when the extent of association is represented by a C of .33.

Again McNemar emphasized that as in the 2 by k table so with the k by 1 table, it is better to calculate an overall chi-square before examining, by the test of differences in proportions technique, any of the possible separate comparisons. Unless the chi-square is significant, it is unwise to proceed with such a comparison.

As regards the investigation reported here and the use of the chi-square technique as a method of analysis the following should be noted. Data included in the chi-square analyses in this study were divided into nominal categories: sex -- women and men; ability -- high, middle and low; persistence -- graduate and nongraduate; personality characteristics -- high, middle and low MMPI scores.

Subjects were divided into three ability categories utilizing specified cut-off points on both the ACE and HSR. Similarly, MMPI scores were divided into three categories on the basis of specified T score cut-off points. Raw scores for each MMPI scale have an equivalent T score to which a raw score can be converted for purposes of interpretation and the construction of a profile. This investigation utilized T score cut-off points to divide the scores on each scale into high, middle and low categories. The high category was defined by a T score of 70 and above, the middle category by a T score between 50 and 69, inclusive, and the low category by a T score of 49 and below. Scores on the MMPI scales were analyzed in terms of high, middle and low T score categories as each category represented differing kinds of behavior which had meaning for the investigation.

The more detailed method of analysis for the hypotheses of no difference in personality characteristics is described below.

1. Invalid Profiles

A special feature of the MMPI is its utilization of four validity scales -- ?, L, F, K. These scales are not concerned with validity in the technical sense. In effect, they aid in the assessment of the operation of special response sets and test-taking attitudes, and provide checks on carelessness and misunderstanding as well. These validity scales have already been described in Chapter III.

According to Hathaway and Meehl (1951a), an MMPI may be considered "invalid" if any one of the following alternatives exists for a given profile:

a. A Question (?) raw score of 100 or greater
(T score equivalent of 70 or above)

b. An L raw score equal to or greater than 10
(T score equivalent of 70 or above)

c. An F raw score equal to or greater than 16
(T score equivalent of 80 or above)

Butcher (1969) has suggested that profiles with high scores on the K scale be omitted from any research analyses; for example, K raw scores equal to or greater than 25 (T score equivalent of 74 or above).

Since the inclusion of invalid MMPI profiles might influence the significance of obtained research results in an unknown way, invalid profiles should be eliminated from most research work (Hathaway & Meehl, 1951a). Accordingly, in this investigation invalid profiles were eliminated from the MMPI analysis using the four above alternatives as a basis for elimination.

Although the Question score was used to eliminate invalid profiles, it was not used in the remainder of the MMPI analysis. This was due to the way in which Question scores were recorded on a student's Form #20 (basic information card) at the Student Counseling Bureau. A raw score of 99 or below on the Question scale was recorded as an "OK"; the actual raw score was recorded if the score equaled or exceeded 100. This method of recording the Question scores allowed such scores to be useful only as an aid in the determination of whether or not a profile was invalid.

Not all of the women and men had orientation MMPI profiles. And due to the manner in which the computer program removed invalid profiles from the MMPI analyses, it was impossible to distinguish between the number of invalid profiles and the number of missing observations, strictly speaking. Ultimately, the MMPI analyses was based on the profiles of 3,197 women (69% of the total sample of 4,633 women) and 3,295 (58.2% of the total sample of 5,658 men).

2. Mean Difference Tests

The mean and standard deviation raw score were computed for each of the 13 MMPI scales (L, F, K, and the ten clinical scales) used in the analyses. This was done separately for the various groups of varying ability women and men graduates and nongraduates.

Snedecor's F test was used to test equality of variance for the compared groups for each of the MMPI scales.

Student's t test was used to test the significance of the difference in mean scores between groups for each of the MMPI scales.

3. MMPI T Score Categories

Scores on each of the 13 MMPI scales were analyzed in terms of T score categories. Scores on the clinical scales were grouped and examined in terms of the following T score categories:

T scores of 70 and above

T scores between 50-69, inclusive

T scores of 49 and below

Due to the method by which invalid profiles were eliminated from the analyses, scores on the validity scales were grouped and examined in terms of the following T score categories:

L Scale

T scores between 50 and 69, inclusive

T scores of 49 and below

F Scale

T scores between 70-79, inclusive

T scores between 50-69, inclusive

T scores of 49 and below

K Scale

T scores between 70-73, inclusive

T scores between 50-69, inclusive

T scores of 49 and below

The raw score and the equivalent T score for each T score category on each MMPI scale for the men and the women are shown in Tables 12 and 13 in Appendix B. The T score cut-off points varied slightly from one scale to another due to the fact that not all scales have raw scores which have exactly an equivalent T score of 70, 50, or 49. For instance, Scale 2 (Depression) has no raw score equivalent to a T score of 50 or 70. Consequently, while the T score cut-off points varied somewhat for each scale, they varied only slightly from the general patterns of 70 and above, 50-69 inclusive, and 49 and below; and it is in terms of these scores that the analyses and the results of the investigation will be reported.

Scores on the 13 MMPI scales were analyzed in terms of T score categories, as each category of scores seemed to represent differing kinds of behavior, each of which might have meaning for the investigator. For instance, elevated T scores of 70 or above suggest personal problems and maladjustment. T scores between 50 and 69 suggest relatively "normal" functioning behavior, although higher T scores in this group may have meaning similar to that of elevated scores. T scores of 49 and below also suggest relatively normal behavior, although lower scores in this group may indicate maladjustment as do elevated scores (Dahlstrom & Welsh, 1960). Extensive research has not been done, however, on low scores; consequently, little is known about their exact meaning.

4. Single MMPI Scales: Chi-Square Analyses and Tests of Differences Between Proportions

A chi-square analyses was performed in terms of the T score categories for each of the thirteen MMPI scales. The chi-square analyses were performed to test the hypotheses that the varying ability female and male college graduates and nongraduates did not differ in their distributions of MMPI scores.

If any of the thirteen chi-squares showed a significant difference between the distribution of MMPI scores for the compared groups, then that group of scores contributing the most to the chi-square was tested for significance against all other groups of scores. The test of significance utilized was the z test of difference in proportions. The test of difference in proportions provided more information about the difference in the distribution of MMPI scores than did the chi-square analysis. The chi-square analysis showed that the compared groups differed in their distribution of scores, while the test of difference in proportions provided specific information about the nature of the difference. This, in turn, permitted a more specific statement to be made about the personality differences which existed between the two groups.

C. DESCRIPTIVE ANALYSES

Descriptive analyses were performed for the women and men graduates and nongraduates of varying ability. Descriptive analyses were performed for the following academic variables:

1. ACE
2. HSR
3. Cumulative grade point average
4. Number of quarters of academic attendance
5. Major field of study
6. College of enrollment
7. Degree obtained
8. Graduation with honors
9. Contact with the Student Counseling Bureau

The analysis for each of the variables is described below.

1. ACE

Mean and standard deviation ACE percentile scores were calculated for the various groups. Percentiles generally are not suitable for the computation of means and standard deviations. The ACE data, however, were available only in the form of percentile ranks. The chief drawback of percentile scores arises from the marked inequality of their units, especially at the extremes of the distribution. If the distribution of raw scores approximates the normal curve, then raw score differences near the mean or center of the distribution are exaggerated in the percentile transformation, while raw score differences near the ends of the distribution are greatly shrunk. Thus, the distances between scores are distorted.

In a normal curve, cases cluster closely at the center and scatter more widely as the extremes are approached. Consequently, any given percentage of cases near the center covers a shorter distance on the baseline than the same percentage near the ends of the distribution. This discrepancy in the gaps between percentile ranks (PR) could be seen if the distance between a PR of 40 and a PR of 50 were compared with the distance between a PR of 90 and a PR of 80. Even more striking is the discrepancy between these distances and those between a PR of 90 and a PR of 100. The same relationship could be seen if the percentile ranks corresponding to equal sigma distances from the mean of a normal curve were examined. Thus, the percentile difference between the mean and plus one sigma is 34 (84-50). That, between plus one and two sigmas, is only 14 (98-84).

Percentiles give a correct picture of each individual's relative position in the normative sample but not the amount of difference between his score and that of another person. For this reason, percentiles generally are unsuitable for the computation of means, standard deviations, and several other statistical measures. The results of such computations with percentiles differ from those obtained with raw scores. For example, the mean of two percentiles does not equal the percentile corresponding to the mean of two raw scores (Anastasi, 1961). Although percentiles have limitations, the ACE mean and standard deviation were calculated using percentiles since the ACE data were available only in this form.

2. HSR

The mean and standard deviation high school percentile rank were computed for the various groups.

Student's t test was used to test the significance of the difference in mean ACE scores and in mean HSR's between women and men graduates and nongraduates. A test of the significance of the differences in either mean ACE scores or mean HSR's of the graduate and nongraduate varying ability groups was not possible. These groups constitute truncated distributions due to the initial criteria of selection, which included specified high school percentile ranks and ACE percentile scores for each ability group. Consequently, a t test of the significance of mean differences or any other test based on a normal distribution could not be used. A nonparametric median difference test could have been used, but the manner in which the data were available did not permit such a test to be performed.

3. Cumulative Grade Point Average

The mean and standard deviation grade point average (GPA) were calculated for the women and men graduates and nongraduates of varying ability.

Where the frequency distributions of GPA's were approximately normal, student's t test was used to test the significance of the difference in mean GPA's for given groups.

4. Number of Quarters of Academic Attendance

Frequency and percentage distributions were made for the number of quarters of academic attendance. Means and standard deviations also were calculated.

For the graduate groups, distributions and mean and standard deviation calculations were made in terms of the number of quarters taken to graduate from the University of Minnesota. For the nongraduate groups, distributions and mean and standard deviation calculations were made in terms of the number of quarters of academic attendance before leaving the University of Minnesota.

5. Major Fields of Study

The specific major fields were grouped into general areas, such as education, social science (CLA), business administration, etc. Frequency and percentage distributions of these general areas were made for the varying ability women and men graduates and nongraduates.

6. College of Enrollment

Frequency and percentage distributions of the colleges of enrollment were made for the varying ability women and men graduates and nongraduates.

7. Degrees Obtained

Frequency and percentage distributions of the earned baccalaureate degrees were made for the varying ability women and men graduates. Frequency and percentage distributions of the one- and two-year degrees and certificates were made for the nongraduates.

8. Graduation with Honors

Frequency and percentage distributions of the honors earned at graduation were made for the graduate groups of women and men of varying ability. The specific categories of honors were:

a. Summa cum laude

b. Magna cum laude

c. Cum laude

d. High distinction

e. Distinction

f. Graduation without honors

9. Contact with the Student Counseling Bureau

The frequency and percentage of subjects who had some contact with the Student Counseling Bureau and of subjects who had no contact were computed for the graduate and nongraduate women and men of varying ability.

D. SUMMARY

Mean difference tests, chi-square analyses, and tests of differences between proportions were performed on the MMPI data in order to test the major hypotheses of no difference in personality characteristics between women and men college graduates and nongraduates of varying ability.

Descriptive analyses also were performed for the following variables: ACE, HSR, grade point average, number of quarters of academic attendance, major field of study, college of enrollment, degree obtained, graduation with honors, and contact with the Student Counseling Bureau.

CHAPTER V

RESULTS: DESCRIPTIVE ANALYSES - ACADEMIC VARIABLES

The results of this investigation are presented in two chapters. The present chapter reports the results of the descriptive analyses concerned with academic variables. Included in this chapter are the persistence rates of the women and men of varying ability; their mean ACE scores, HSR's, and GPA's; the number of quarters of academic attendance; colleges of enrollment; major fields of study; degrees earned; honors conferred; and contact with the Student Counseling Bureau. Supporting tables which show these academic variable data are contained in Appendix C.

The MMPI analyses are reported in Chapter VI. A discussion of all the results is presented in Chapter VII.

A. PERSISTENCE IN COLLEGE

The total rate of persistence as well as the rate of persistence according to year of college entrance of the varying ability women and men are presented in Tables 14 and 15 (Appendix C).

1. Women

Graduation with a baccalaureate degree from the University of Minnesota was achieved by less than half (2,169) or 46.8 percent of the 4,633 women; 53.2 percent (2,464) did not graduate with a baccalaureate degree. The graduation rates each year, with two exceptions, tended to be lower than the nongraduation rates. The women who entered in 1957 and 1958 had the highest graduation rate: 60.0 and 53.5 percent, respectively.

Graduation was more frequent among Middle (17.5%) and High (16.3%) ability women than among Low (13.0%) ability women. On the other hand, withdrawal was more frequent among Middle (21.8%) and Low (20.4%) ability women than among High (11.0%) ability women.

2. Men

Graduation with a baccalaureate degree from the University of

Minnesota was achieved by over half (3,151) or 55.7 percent of the 5,658 men; 44.3 percent (2,507) did not graduate with a baccalaureate degree. Graduation rates each year, with one exception, tended to be higher than the nongraduation rates. The men who entered in 1957, 1950, and 1951 had the highest graduation rates: 71.1, 64.2, and 61.2 percent, respectively.

Middle (24.9%) and Low (19.5%) ability men graduated more frequently than High (11.3%) ability men. On the other hand, Low (23.2%) and Middle (17.7%) ability men also withdrew more frequently than High (3.4%) ability men.

3. Women and Men

Graduation with a baccalaureate degree was achieved by less than half of the women and by more than half of the men (46.8% and 55.7%, respectively).

Among the High ability, more women than men graduated (16.3% and 11.3%, respectively). However, more men than women of Middle ability graduated (24.9% and 17.5%, respectively); and more men than women of Low ability graduated (19.5% and 13.0%, respectively).

Over half of the 4,633 women withdrew from the U of M in contrast to less than half of the 5,658 men (53.2% and 44.3%, respectively). More women than men of High ability withdrew (11.0% and 3.4%, respectively); and more women than men of Middle ability withdrew (21.8% and 17.7%, respectively). However, more men than women of Low ability withdrew from the U of M (23.2% and 20.4%, respectively).

B. ACE

The mean, median, and standard deviation ACE percentile scores for the Graduate and Nongraduate varying ability women and men are shown in Table 16 (Appendix C).

1. Women and Men - Graduates

The mean ACE scores of the High ability women and men Graduates were similar, although the men were slightly higher (93.74 and 92.57, respectively). The mean ACE score of the Middle men Graduates was somewhat higher than that of the Middle women Graduates (78.83 and 74.77, respectively). The same was true for the Low ability men and women Graduates but with a greater difference (43.97 and 31.42, respectively). Low ability men were more variable than Low women in their ACE scores.

2. Women and Men - Nongraduates

Among the Nongraduates, High ability women had a similar, but slightly higher, mean ACE score as compared to the High men (92.23 and 91.63, respectively). The reverse was true for the Middle ability men and women Nongraduates, where the men had a slightly higher ACE mean score (78.71 and 75.49, respectively); and for the Low ability men and women, with a greater difference (48.19 and 34.43, respectively). Low ability men Nongraduates were more variable in their ACE scores than were the Low ability women Nongraduates.

C. HSR

The mean, median, and standard deviation high school percentile ranks for the Graduate and Nongraduate varying ability women and men are shown in Table 17 (Appendix C).

1. Women and Men - Graduates

The mean HSR's of the High ability women and men Graduates were similar, although the women were slightly higher (96.23 and 95.77, respectively). Middle ability women Graduates had a higher mean HSR than the Middle ability men (84.05 and 76.32, respectively); and the same was true for the Low ability women and men Graduates (78.87 and 60.60, respectively). Low ability men Graduates were more variable than the Low women in their high school percentile ranks.

2. Women and Men - Nongraduates

Among the Nongraduates, High ability women had a similar, but slightly higher, mean HSR as compared to the High men (95.46 and 94.87, respectively). Greater differences in mean HSR were found for the Middle ability women and men Nongraduates (78.44 and 71.53, respectively); and, especially, for the Low ability women and men Nongraduates (70.35 and 51.99, respectively). Low ability Nongraduate men were more variable in their high school percentile ranks than were the Low Nongraduate women.

D. NUMBER OF QUARTERS OF ACADEMIC ATTENDANCE

The frequency and percentage as well as mean quarters of academic attendance are shown in Tables 18 and 19 (Appendix C). The number of quarters taken to graduate from the University is shown for the Graduates, and the number of quarters of attendance before withdrawal is shown for the Nongraduates.

1. Women - Graduates

The total Graduate women took an average of 13.04 quarters to complete their degree work. The average graduation time was similar for High, Middle, and Low ability women: 12.79, 13.04, and 13.36 quarters, respectively.

The range of quarters taken to graduate for the total Graduate women was from 6 to 24, inclusive: one low ability woman completed degree work in six quarters, while another low ability woman took 24 quarters. The range of quarters was slightly less for Graduate High ability women (8 to 19 quarters) than it was for Middle (9 to 22) and Low (6 to 24) ability women.

The most frequent quarters of graduation for the total Graduate women were the twelfth and thirteenth quarters: 35.5 and 26.6 percent, respectively, graduated in each of these quarters. These were also the most frequent quarters of graduation for the High, Middle, and Low ability Graduate women. However, more High (39.4%) ability women than Middle (35.1%) or Low (31.1%) graduated in the twelfth quarter; and fewer High (23.9%) ability women than Middle (28.2%) or Low (28.0%) graduated in the thirteenth quarter.

Slightly more than 46 percent of the total Graduate women graduated by the end of 12 quarters; and 73 percent by the end of 13 quarters. Over half of the High ability women but less than half of the Middle and, especially, the Low ability women had graduated by the end of 12 quarters (52.8%, 43.4%, and 35.4%, respectively). Although the greater percentage of High, Middle, and Low ability women had graduated by the end of 13 quarters, more High than Middle and, especially, Low ability women had done so (76.7%, 71.6%, and 63.4%, respectively).

2. Men - Graduates

The total Graduate men took an average of 13.79 quarters to complete their degree work. The average graduation time was similar for High, Middle, and Low ability men--13.31, 13.66, and 14.22 quarters, respectively, with the Low ability taking a slightly longer period of time.

The range of quarters taken to graduate for the total Graduate men was 6 to 33, inclusive: one low ability man completed degree work in six quarters, while another low ability man took 33 quarters. The range of quarters was slightly less for Graduate High ability men (9 to 25 quarters) than it was for Middle (8 to 26 quarters) and Low (6 to 33) ability men.

The most frequent quarters of graduation for the total Graduate men were the twelfth and thirteenth quarters: 28.5 and 25.7 percent, respectively, graduated in each of these quarters. These were also the most frequent quarters of graduation for the High, Middle, and Low ability Graduate men. However, more High (36.2%) ability men than Middle (30.2%) and, especially, Low (21.8%) graduated in the twelfth quarter; whereas, an almost equal proportion of the three ability levels graduated in the thirteenth quarter.

One-third of the total Graduate men graduated by the end of 12 quarters, 58.7 percent by the end of 13 quarters and 62.8 percent by the end of 14 quarters. Slightly less than half of the High ability men, as well as even fewer of the Middle and, especially, the Low ability men, had graduated by the end of 12 quarters (44.5%, 35.3%, and 23.6%, respectively). However, a majority of the High and a smaller majority of Middle ability men had graduated by the end of 13 quarters, although less than half of the Low ability men had done so (70.4%, 61.1%, and 49.0%, respectively). By the end of 14 quarters, a large majority of the High ability and a smaller, but similar, majority of the Middle and Low ability men had graduated (80.9%, 65.3%, and 65.1%, respectively).

3. Women and Men - Graduates

Generally speaking, the pattern of attendance to graduation was similar for the women and men Graduates, e.g., the most frequent quarters of graduation were the twelfth and thirteenth quarters; and the patterns among the High, Middle, and Low ability women and men also were similar.

However, the men took longer to graduate than did the women: this was true for the total men and total women as well as among the varying ability levels for each sex. For example, the total women Graduates took 6 to 24 quarters to graduate, whereas the men took 6 to 33 quarters (9 more quarters). In addition, more women than men graduated during the twelfth quarter (35.5% and 28.5%, respectively), although a similar percentage graduated during the thirteenth quarter (26.6% and 25.7%, respectively). However, far more women than men graduated by the end of 12 quarters (46.4% and 33.0%, respectively) as well as by the end of 13 quarters (73.0% and 58.7%, respectively) and 14 quarters (84.1% and 62.8%, respectively).

These above patterns were similar for the varying ability Graduate women and men, but the differences were greater among the varying ability men and, especially, the differences between High and Low ability men.

Over half of the High ability women but less than half of the men graduated by the end of 12 quarters (52.8% and 44.5%, respectively). However, by the end of 13 and 14 quarters the percentages were somewhat similar, although more High ability women than men had graduated by then (76.7% and 70.4%, respectively, for 13 quarters), and (84.4% and 80.9%, respectively, for 14 quarters).

Among the Middle ability, far more women than men graduated by the end of 12 quarters (43.4% and 35.3%, respectively); by the end of 13 quarters (71.6% and 61.1%, respectively); and by the end of 14 quarters (82.7% and 65.3%).

The pattern was similar for the Low ability: far more women than men graduate by the end of 12 quarters (35.4% and 23.6%); by the end of 13 quarters (63.4% and 49.0%); and by the end of 14 quarters (78.7% and 65.1%).

4. Women - Nongraduates

The average length of attendance for the total Nongraduate women was 5.12 quarters. The average attendance time was similar for High, Middle, and Low ability women: 5.88, 5.15, and 4.68 quarters, respectively.

The range of quarters of academic attendance before withdrawal for the total Nongraduate women was from less than one quarter to 45 quarters, inclusive: 4.9 percent of the women did not complete one quarter but withdrew some time during their first freshman quarter, and one Middle ability woman was in attendance 45 quarters. The range of quarters was less for Nongraduate High ability women (zero to 19 quarters) than it was for Low (zero to 22 quarters) and Middle (zero to 45) ability women. More Low (6.1%) and Middle (5.0%) ability women than High (2.5%) ability completed less than one (zero) quarter.

The most frequent individual quarters of withdrawal for the total Nongraduate women were the end of the third and the end of the sixth quarters: 21.4 and 15.5 percent, respectively, withdrew at the end of each of these quarters. These were also the most frequent quarters of withdrawal for the High, Middle, and Low ability Nongraduate women: the percentages were approximately similar for each, although slightly more Low and High, in contrast to Middle ability, withdrew in the third quarter (23.2%, 21.2%, and 19.8%, respectively), as well as in the sixth quarter (15.6%, 17.3%, and 14.5%, respectively).

A cumulative percentage of 44.0 percent of the total Nongraduate women had withdrawn by the end of three quarters, 71.8 percent by the end of six quarters, and 88.7 percent by the end of nine quarters. Close to half of the Low ability women but less than half of the Middle and, especially, the High ability women had withdrawn by the end of three quarters (47.4%, 43.9%, and 37.8%, respectively). Although a large percentage of the varying ability women had withdrawn by the end of six quarters, more Low and Middle ability than High ability had done so

(76.6%, 70.7%, and 64.9%, respectively). This descending rank order pattern of Low, Middle, and High was also true at the end of nine quarters (91.4%, 88.8%, and 83.5%, respectively).

5. Men - Nongraduates

The average length of attendance of the total Nongraduate men was 5.79 quarters. The average attendance time was similar for High, Middle, and Low ability men: 6.97, 6.00, and 5.46 quarters, respectively.

The range of quarters of academic attendance before withdrawal for the total Nongraduate men was from less than one quarter to 73 quarters, inclusive: 6.1 percent of the men did not complete one quarter but withdrew some time during their first freshman quarter, and one Low ability man was in attendance 73 quarters. The range of quarters was less for High ability men (zero to 21 quarters) than for Middle (zero to 45) and Low (zero to 73) ability men. More Low (7.4%) than Middle (4.8%) or High (4.2%) ability men completed less than one (zero) quarter.

The most frequent individual quarters of withdrawal were the end of the third, first, and sixth quarters: 14.2, 11.6, and 8.9 percent, respectively, withdrew at the end of each of these quarters. These were also the most frequent quarters of withdrawal for the varying ability Nongraduate men, although the percentages differed. More High and Middle ability men than Low ability men withdrew at the end of the third quarter (17.7%, 15.3% and 12.9%, respectively); whereas more Low and Middle ability men than High ability men withdrew at the end of the first quarter (12.0%, 11.8%, 7.3%, respectively) as well as at the end of the sixth quarter, although the percentages were approximately similar (9.4%, 8.7%, and 7.3%, respectively).

A cumulative percentage of 39.6 percent of the total Nongraduate men had withdrawn by the end of three quarters, 62.5 percent by the end of six quarters, and 81.7 percent by the end of nine quarters. More Low and Middle ability men than High ability men had withdrawn by the end of three quarters (40.7%, 39.1%, and 34.4%, respectively). Although over half of the varying ability men had withdrawn by the end of six quarters, more Low and Middle ability than High ability had done so (65.1%, 61.1%, and 52.1%, respectively). The descending rank order pattern was also true at the end of nine quarters (84.3%, 80.1%, and 71.5%, respectively).

6. Women and Men - Nongraduates

Generally speaking, the pattern of attendance before withdrawal was somewhat similar, although not precisely similar for the women and men Nongraduates, e.g., the most frequent individual quarters of withdrawal were the third and sixth, although it was also the first quarter for the men; and the patterns among the High, Middle, and Low ability men and women also were similar.

The men, however, stayed around longer before withdrawal than did the women; this was true for the total men and total women as well as among the varying ability levels for each sex. For example, the total women Nongraduates were in attendance from less than one to 45 quarters before withdrawal, whereas the total men Nongraduates were in attendance from less than one to 73 quarters (28 more quarters). In addition, more women than men withdrew during the sixth quarter (15.5% versus 8.9%, respectively) and third quarter (21.4% versus 14.2%, respectively), although more men than women withdrew the first quarter (11.6% versus 9.5%, respectively). Furthermore, more women than men had withdrawn by the end of three quarters (44.0% versus 39.6%, respectively); and while over one-half of the women and over one-half of the men Nongraduates had withdrawn by the end of six quarters, far more women (71.8%) than men (62.5%) had done so. However, the percentage of withdrawal of the men (81.7%) had increased by the end of nine quarters and was more nearly similar to that of the women (88.7%).

These above patterns were generally similar for the varying ability Nongraduate women and men. Slightly more of the High ability men than women had withdrawn by the end of the first full quarter (11.5% versus 9.0%, respectively); although more High ability women than men had withdrawn by the end of three (37.8% versus 34.4%, respectively), six (64.9% versus 52.1%, respectively), and nine quarters (83.5% and 71.5%, respectively).

Among the middle ability, slightly more men than women had withdrawn by the end of the first full quarter (16.6% versus 15.7%); but, as above, more Middle ability women than men had withdrawn by the end of three (43.9% versus 39.1%), six (70.7% versus 61.1%), and nine (88.8% versus 80.1%) quarters.

A similar pattern, although to a greater extent, held true for the Low ability: more men than women left by the end of the first full quarter (19.4% versus 16.0%); but more women than men left by the end of three (47.4% versus 40.7%), six (76.6% versus 65.1%) and nine (91.4% versus 84.3%) quarters.

E. COLLEGE OF ENROLLMENT

Data concerning the college of enrollment is shown in Table 20 (Appendix C). These data are for the college in which the Graduates were enrolled at the time of graduation from the University of Minnesota and for the college in which the Nongraduates were enrolled at the time of their withdrawal from the University.

1. Women - Graduates

The total Graduate women, at the time of graduation from the University, were primarily enrolled in the College of Liberal Arts (CLA) (39.1%), followed closely by the College of Education (34.8%), and less closely by the College of Medical Sciences[5] (18.7%).

The College of Agriculture, Forestry, and Home Economics (AFHE) was the college of enrollment for 2.2 percent of the Graduate women, University College for 1.9 percent; and the School of Business Administration for 1.7 percent.

A similar general pattern, as above, held true for the varying ability levels, although some differences in college enrollment existed among the ability levels. High ability (46.0%) Graduate women were more frequently enrolled in CLA, whereas Low (42.6%) ability Graduate women were more frequently enrolled in Education. The Middle ability women were distributed about evenly in CLA (38.7%) and Education (36.5%).

The College of Medical Sciences had a similar percentage of High (19.7%), Middle and Low (each 18.1%) enrolled; but AFHE had more Low (3.7%) than High (2.0%) or Middle (1.4%) ability.

2. Men - Graduates

Over one-half of the total Graduate men, at the time of graduation from the University, were enrolled in CLA (51.7%), followed less frequently by the School of Business Administration (21.9%), and even less frequently by Education (9.4%).

The School of Dentistry was the college of enrollment for 4.2 percent of the Graduate men; the Institute of Technology (IT) for 4.1 percent; and the School of Law for 3.4 percent.

At least one percent or more were enrolled in the College of Medical Sciences (1.7%), the College of Pharmacy (1.5%), University College (1.0%), and AFHE (1.0%).

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[5] These included majors such as Medicine, Nursing, Medical Technology, Occupational and Physical Therapy, etc.

A similar general pattern held true for the varying ability levels, although some differences in college enrollment existed among the ability levels. CLA had more High (54.7%) than Low (49.2%) or Middle (52.2%) ability men, whereas Business had more Low (25.2%) than High (15.7%) or Middle (22.0%) ability men. Almost similar percentages of each of the ability levels were enrolled in Education, Dentistry, and IT. Slightly more High ability than Low or Middle ability men were enrolled in Law.

3. Women and Men - Graduates

The pattern of college enrollment at the time of graduation tended to differ for the total women and total men Graduates. On the one hand, men were enrolled in more colleges than were women; and more men than women were enrolled in CLA (51.7% to 39.1%), in Business (21.9% to 1.7%), in Dentistry (4.2% to 0.7%), in IT (4.1% to 0.1%), in Law (3.4% to 0.2%), and in Pharmacy (3.4% to 0.2%).

On the other hand, more Graduate women than men were enrolled in Education (34.8% to 9.4%), College of Medical Sciences (18.7% to 1.7%), AFHE (2.2% to 1.0%), and University College (1.9% to 1.0%).

These general patterns of differences also tended to exist between the varying ability levels of men and women graduates.

4. Women - Nongraduates

The vast majority of the total Nongraduate women, at the time of withdrawal from the University, were enrolled in CLA (89.1%), followed far less frequently by Education (5.1%), General College (2.3%), and the College of Medical Sciences (1.5%).

This same pattern held true for almost similar percentages of the High, Middle, and Low ability Nongraduate women, although slightly more Low (5.6%) than Middle (4.7%) or High (4.9%) were in Education; and slightly more High (2.4%) than Low (1.0%) or Middle (1.5%) were in Medical Sciences.

5. Men - Nongraduates

The vast majority of the Nongraduate men, at the time of withdrawal from the University, were enrolled in CLA (82.4%), followed far less frequently by General College (6.9%), Business (4.1%), IT (2.9%), and Education (2.0%).

While almost similar percentages of High, Middle, and Low ability Nongraduate men were enrolled in CLA and in Education, other differences tended to exist in their colleges of enrollment. For example, no High ability Nongraduate men were enrolled in General College; and of the Nongraduates enrolled, more were Low (9.8%) than Middle (4.5%) ability. As for Business, more High (9.4%) than Low (3.1%) or Middle (4.5%) ability were enrolled.

6. Women and Men - Nongraduates

The patterns of college enrollment at the time of withdrawal from the University tended to have both similarities and differences between the women and men Nongraduates. The vast majority of both, although slightly more women (89.1%) than men (82.4%), were enrolled in CLA. More women than men were enrolled in Education (5.1% to 2.0%) and in Medical Sciences (1.5% to 0.1%); whereas more men than women were enrolled in General College (6.9% to 2.3%), Business (4.1% to 0.6%), and IT (2.9% to 0.1%).

These general patterns of differences also tended to exist between the varying ability levels of men and women Nongraduates.

F. MAJOR FIELDS OF STUDY

The specific major fields were grouped into more general categories. The frequency and percentage of these general categories of major fields are shown in Table 21, Appendix C, for the Graduate and Nongraduate women and men of varying ability.[6]

1. Women - Graduates

Total. Over one-half of the total women Graduates were in the following general major fields: Social Sciences (CLA)--16.3 percent; Elementary Education--14.7 percent; Verbal-Linguistic and the Arts (CLA)--12.0 percent; and Nursing--9.4 percent.

An additional 5.1 percent had Interdisciplinary Studies (CLA) majors; 4.9 percent, Verbal-Linguistic and the Arts (Secondary Education); and 4.4 percent, Medical Technology.

Around three percent or more each were in the following general major fields: Languages (Secondary Education)--3.3 percent; Nursery, Kindergarten and Primary Education--3.2 percent; and Occupational Therapy--3.0 percent.

The following major fields had about two percent or more in each: Art or Music Education--2.7 percent; Languages (CLA)--2.6 percent; Physical Education or Recreation Leadership--2.3 percent; and Home Economics--2.1 percent.

Major fields with 1 to 1.9 percent of the Graduate women were: University College Major--1.9 percent; Business Administration--1.7 percent; Natural Sciences or Mathematics (Secondary Education)--1.2 percent; and Double Major (CLA)--1.0 percent.

Less than one percent of the Graduate women had majors in the following (descending rank order): Dental Hygiene, Business or Distributive Education, Other Secondary Education Majors, Medicine, Pharmacy, Combined CLA and Education Program, Double Major (Secondary Education), Law, and Engineering or Science.

None of the women Graduates had majors in Agriculture and Forestry, Veterinary Medicine, Dentistry, or Industrial Education.

Varying Ability. The percentages of High, Middle, and Low ability women Graduates in each of these general major fields tended to vary.

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[6] It should be remembered here that the sample of women and men initially entered the College of Liberal Arts as new freshmen.

The general major fields and percentages for each ability group are listed below.

Social Sciences (CLA)
More High (18.5%) and Middle (16.5%) than Low (13.3%)

Elementary Education
More Low (20.3%) and Middle (16.2%) than High (8.6%)

Verbal-Linguistic and the Arts (CLA)
More High (14.3%) and Middle (12.7%) than Low (8.2%)

Nursing
More Low (10.5%) and Middle (9.4%) than High (8.6%)

Interdisciplinary Studies (CLA)
More High (6.3%) than Middle (4.7%) or Low (4.2%)

Verbal-Linguistic and the Arts (Secondary Education)
More High (5.7%) than Middle (4.7%) or Low (4.3%)

Medical Technology
More High (6.3%) than Middle (4.2%) or Low (2.3%)

Languages (Secondary Education)
More High (4.2%) than Middle (3.1%) or Low (2.5%)

Nursery, Kindergarten and Primary Education
More Low (5.8%) than Middle (3.6%) or High (0.8%)

Occupational Therapy
More Low (3.7%) and Middle (3.1%) than High (2.5%)

Art or Music Education
More Middle (3.1%) and Low (3.0%) than High (2.0%)

Languages (CLA)
More Low (3.2%) than Middle (2.5%) or High (2.4%)

Physical Education or Recreation Leadership
More Low (4.2%) than Middle (2.5%) or High (0.5%)

Home Economics
More Low (3.3%) than High (2.0%) or Middle (1.4%)

University College Major
More Low (2.2%) and Middle (2.1%) than High (1.5%)

Business Administration
More Middle (2.0%) and High (1.8%) than Low (1.2%)

Natural Science or Mathematics (CLA)
More High (2.5%) than Middle (1.4%) or Low (1.0%)

Physical Therapy
Similar: High (1.6%), Low (1.5%), Middle (1.4%)

Social Sciences (Secondary Education)
More High (1.6%) and Middle (1.5%) than Low (1.2%)

Natural Science or Mathematics (Secondary Education)
More High (2.4%) than Low (0.7%) or Middle (0.4%)

Double Major (CLA)
Similar: High (1.1%), Middle (1.0%), Low (1.0%)

In addition, the eight women Graduates in Medicine or Pre-Medicine and the two in Engineering were of High ability. Three of the six women in Pharmacy were of High and two were of Low ability. The 15 Dental Hygiene Graduates were of primarily Low (7) and Middle (6) ability.

Some of the more frequent major fields, in rank order, of the varying ability women Graduates are listed below.

High	% of High	Middle	% of Middle	Low	% of Low
Soc Sci (CLA)	18.5	Soc Sci (CLA)	16.5	Elem Ed	20.3
Verb-Ling & Arts (CLA)	14.3	Elem Ed	16.2	Soc Sci (CLA)	13.3
Elem Ed	8.6	Verb-Ling & Arts (CLA)	12.7	Nursing	10.5
Nursing	8.6	Nursing	9.4	Verb-Ling & Arts (CLA)	8.2
Interdis Studs (CLA)	6.3	Interdis Studs (CLA)	4.7	NKP	5.8
Med Tech	6.3	Verb-Ling & Arts (2nd Ed)	4.7	Verb-Ling & Arts (2nd Ed)	4.3
Verb-Ling & Arts (2nd Ed)	5.7	Med Tech	4.2	Interdis Studs (CLA)	4.2
Langs (2nd Ed)	4.2	NKP	3.6	P.E. & Rec Ldrsp	4.2
O.T.	2.5	Langs (2nd Ed)	3.1	O.T.	3.7
Nat Sci or Math (CLA)	2.5	O.T.	3.1	Home Ec	3.3
Langs (CLA)	2.4	Art or Mus Ed	3.1	Langs (CLA)	3.2
Nat Sci or Math (2nd Ed)	2.4	Langs (CLA)	2.5	Art or Mus Ed	3.0
Art or Mus Ed	2.0	P.E. & Rec Ldrsp	2.5	Langs (2nd Ed)	2.5
Home Ec	2.0	Home Ec	2.0	Med Tech	2.3

2. Men - Graduates

Total. Over one-half of the total Graduate men were in the following general major fields: Social Sciences (CLA)--24.8 percent; Business Administration--22.0 percent; and Verbal-Linguistic and the Arts (CLA)--9.9 percent.

An additional 5.6 percent were in Natural Science or Mathematics (CLA); 5.1 percent in Pre-Medicine; 4.2 percent, Dentistry; and 4.1 percent were in Engineering or Science.

Slightly over three percent each were in Interdisciplinary Studies (CLA)--3.3 percent, and Law--3.3 percent.

Major fields with 1 to 1.9 percent of the Graduate men were: Natural Science or Mathematics (Secondary Education)--1.9 percent; Social Sciences (Secondary Education)--1.7 percent; Pharmacy--1.5 percent; Medicine[7] 1.1 percent; Physical Education or Recreation Leadership--1.1 percent; Elementary Education--1.1 percent; Verbal-Linguistic and the Arts (Secondary Education)--1.0 percent; Agriculture and Forestry--1.0 percent; and University College majors--1.0 percent.

Less than one percent of the men Graduates had majors in (descending rank order): Art or Music Education; Double Major (CLA); Languages (CLA); Industrial Education; Pre-Law; Languages (Secondary Education); Business or Distributive Education; Pre-Theology; Veterinary Medicine; Mortuary Science; "Other" Secondary Education majors; Pre-Dentistry; Physical Therapy; Double Major (Secondary Education); Combined CLA and Education Program; "Other" CLA majors; Medical Technology; and Nursing.

None of the men Graduates had majors in Home Economics; Nursery, Kindergarten, and Primary Education; Dental Hygiene; and Occupational Therapy.

Varying Ability. The percentages of High, Middle, and Low ability men Graduates in each of the general major fields tended to vary. The general major fields and percentages of each ability group are listed below:

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[7] Students who received a baccalaureate degree while in Medicine. Such students usually entered Medicine after their third year in CLA.

Social Sciences (CLA)
More Low (27.1%) and Middle (26.5%) than High (17.1%)

Business Administration
More Low (25.5%) and Middle (22.1%) than High (15.7%)

Verbal-Linguistic and the Arts (CLA)
More Low (11.3%) than Middle (9.9%) or High (7.7%)

Natural Science or Mathematics (CLA)
More High (10.0%) than Middle (5.3%) or Low (2.8%)

Pre-Medicine
More High (11.9%) than Middle (4.7%) or Low (1.7%)

Dentistry
More Middle (4.5%) than Low (3.9%) or High (3.9%)

Engineering or Science
More Low (4.8%) than Middle (4.0%) or High (3.0%)

Interdisciplinary Studies (CLA)
More High (4.4%) than Middle (3.1%) or Low (2.8%)

Law
More High (5.0%) than Middle (3.6%) or Low (2.0%)

Natural Science or Mathematics (Secondary Education)
More High (3.4%) than Middle (1.7%) or Low (1.2%)

Social Sciences (Secondary Education)
Similar: Low (1.8%), Middle (1.7%), High (1.7%)

Pharmacy
More Middle (1.8%) and High (1.6%) than Low (1.6%)

Medicine
More High (3.6%) than Middle (0.7%) or Low (0.2%)

Physical Education or Recreation Leadership
More Low (1.6%) than Middle (0.9%) or High (0.8%)

Elementary Education
More Low (1.3%) and Middle (1.3%) than High (0.3%)

Verbal-Linguistic and the Arts (Secondary Education)
More High (1.9%) than Middle (1.1%) or Low (0.5%)

Agriculture and Forestry
More Low (1.2%) and Middle (1.1%) than High (0.5%)

University College Majors
More High (1.6%) and Low (1.4%) than Middle (0.6%)

Some of the more frequent major fields, in rank order, of the High, Middle, and Low ability Graduate men are listed below.

High	% of High	Middle	% of Middle	Low	% of Low
Soc Sci (CLA)	17.1	Soc Sci (CLA)	26.5	Soc Sci CLA)	27.1
Bus Adm	15.7	Bus Adm	22.1	Bus Adm	25.5
Pre-Med	11.9	Verb-Ling & Arts (CLA)	9.9	Engin or Sci	4.8
Nat Sci or Math (CLA)	10.0	Nat Sci or Math (CLA)	5.3	Dentistry	3.9
Verb-Ling & Arts (CLA)	7.7	Pre-Med	4.7	Nat Sci or Math (CLA)	2.8
Law	5.0	Dentistry	4.5	Interdis Studs (CLA)	2.8
Interdis Studs (CLA)	4.4	Engin or Sci	4.0	Law	2.0
Dentistry	3.9	Law	3.6		
Medicine	3.6	Interdis Studs (CLA)	3.1		
Nat Sci or Math (2nd Ed)	3.4				
Engin or Sci	3.0				

3. Women and Men - Graduates

While most, although not all, of the major fields had a representation of both women and men Graduates, the frequency of enrollment in the major fields varied to some extent by sex and ability. For example, the four most frequent majors for High ability women Graduates were Social Sciences (CLA)--(18.5%); Verbal-Linguistic and the Arts (CLA)--(14.3%); Elementary Education--(8.6%); and Nursing--(8.6%), whereas those for High ability men Graduates were Social Sciences (CLA)--(17.1%); Business Administration--(15.7%); Pre-Medicine--(11.9%); and Natural Sciences or Mathematics (CLA)--(10.0%).

Among the Middle women, the four most frequent major fields were Social Sciences (CLA)--(16.5%); Elementary Education--(16.2%); Verbal-Linguistic and the Arts (CLA)--(12.7%); and Nursing--(9.4%) in comparison to those for the Middle men of Social Sciences (CLA)--(26.5%); Business Administration--(22.1%); Verbal-Linguistic and the Arts--(9.9%); and Natural Sciences or Mathematics (CLA)--(5.3%).

The four most frequent majors for the Low women Graduates were Elementary Education--(20.3%); Social Sciences (CLA)--(13.3%); Nursing--(10.5%); and Verbal-Linguistic and the Arts (CLA)--(8.2%) in contrast to those for the Low men of Social Sciences (CLA)--(27.1%); Business Administration--(25.5%); Engineering or Science--(4.8%); and Dentistry--(3.9%).

4. Women - Nongraduates

Total. Over one-half of the total Nongraduate women had either No Major (in CLA)--28.2% percent--or were in the following general major fields: Verbal-Linguistic and the Arts (CLA)--16.0 percent; and Social Sciences (CLA)--10.3 percent.

An additional 7.6 percent were in Pre-Education, and 5.9 percent were in Pre-Nursing.

About three percent or more each were in Pre-Business Administration--3.9 percent; and Pre-Medical Technology--3.8 percent.

The following major fields had about two percent or more in each: Education (only this listed on transcript as the major)--2.8 percent; "Other" majors (CLA)--2.4 percent; Interdisciplinary Studies (CLA)--2.2 percent; Natural Sciences or Mathematics (CLA)--2.2 percent; and General College majors--2.2 percent.

Major fields with 1 to 1.9 percent of the Nongraduate women were: Languages (CLA)--1.9 percent; Pre-Occupational Therapy--1.7 percent; Nursing--1.1 percent; Pre-Medicine--1.1 percent; and Pre-Physical Therapy--1.0 percent.

Less than one percent of the Nongraduate women had majors in the following (descending rank order): Business Administration; Home Economics; Elementary Education; Secondary Education (only this listed on transcript as a major); Social Sciences (Secondary Education); Pre-Law; Art or Music Education; Verbal-Linguistic and the Arts (Secondary Education); Pre-Home Economics; Medical Technology; Dental Hygiene; Double Major (CLA); Languages (Secondary Education); Double Major (Secondary Education); Combined CLA and Education Program; Engineering or Science; Pharmacy; and Pre-Pharmacy.

Varying Ability. The percentages of High, Middle, and Low ability Nongraduate women in each of these general major fields tended to vary. The general major fields and percentages for each ability group are listed below.

No Major (CLA)
More Low (32.9%) than Middle (28.1%) and High (19.6%)

Verbal-Linguistic and the Arts (CLA)
More High (18.2%) and Middle (17.1%) than Low (13.7%)

Social Sciences (CLA)
More High (11.4%) and Middle (11.0%) than Low (9.0%)

Pre-Education
More Low (8.9%) and Middle (8.1%) than High (4.1%)

Pre-Nursing
More Low (7.2%) than Middle (5.2%) or High (5.1%)

Pre-Business Administration
Similar: High (4.5%), Low (4.0%), Middle (3.5%)

Pre-Medical Technology
More High (5.7%) than Middle (3.9%) or Low (2.6%)

Education
More Low (3.7%) and Middle (3.3%) but no High (0.0%)

Other Majors (CLA)
More Low (3.6%) than Middle (1.7%) or High (1.6%)

Interdisciplinary Studies (CLA)
More High (3.1%) and Middle (2.7%) than Low (1.3%)

Natural Science or Mathematics (CLA)
More High (6.1%) than Middle (1.6%) or Low (0.6%)

General College Majors
More Low (3.9%) than Middle (1.6%) or High (0.2%)

Languages (CLA)
More Low (4.9%) and High (3.7%) than Middle (1.7%)

Pre-Occupational Therapy
More Middle (2.2%) and Low (1.7%) than High (1.0%)

Nursing
More High (2.0%) and Middle (1.2%) than Low (0.6%)

Pre-Medicine
More High (2.9%) than Middle (1.1%) or Low (0.1%)

Pre-Physical Therapy
Similar: Low (1.1%), Middle (1.0%), High (1.0%)

Some of the major fields, in rank order, of the varying ability Nongraduate women are listed below.

High	% of High	Middle	% of Middle	Low	% of Low
No Major (CLA)	19.6	No Major (CLA)	28.1	No Major (CLA)	32.9
Verb-Ling & Arts (CLA)	18.2	Verb-Ling & Arts (CLA)	17.1	Verb-Ling & Arts (CLA)	13.7
Soc Sci (CLA)	11.4	Soc Sci (CLA)	11.0	Soc Sci (CLA)	9.0
Nat Sci or Math (CLA)	6.1	Pre-Educ	8.1	Pre-Educ	8.9
Pre-Med Tech	5.7	Pre-Nursing	5.2	Pre-Nursing	7.2
Pre-Nursing	5.1	Pre-Med Tech	3.9	Langs (CLA)	4.9
Pre-Bus Adm	4.5	Pre-Bus Adm	3.5	Pre-Bus Adm	4.0
Pre-Educ	4.1	Educa	3.3	Gen'l Coll Majors	3.9
Langs (CLA)	3.7	Interdis Studs (CLA)	2.7	Educa	3.7
Interdis Studs (CLA)	3.1	Pre-O.T.	2.2	Other Majors (CLA)	3.6
Pre-Med	2.9				
Nursing	2.0				

5. Men - Nongraduates

Total. Over one-half of the total Nongraduate men had either No Major (in CLA)--18.5 percent--or were in the following general major fields: Pre-Business Administration--18.3 percent; Social Sciences (CLA)--8.9 percent; and Verbal-Linguistic and the Arts (CLA)--8.6 percent.

An additional 7.0 percent had General College majors; 6.1 percent were in Natural Science or Mathematics (CLA); and 4.3 percent were in Business Administration.

Approximately three percent or more each were in: Pre-Law--3.9 percent; Pre-Education--3.7 percent; Pre-Medicine--3.7 percent; and Pre-Engineering--3.4 percent.

The following major fields had about two percent or more in each: Engineering or Science--2.9 percent; and Pre-Dentistry--2.1 percent.

Major fields with 1 to 1.9 percent of the Nongraduate men were: Education--1.6 percent; Interdisciplinary Studies--1.2 percent; and Other Major (CLA)--1.1 percent.

Less than one percent of the Nongraduate men had majors in the following (descending rank order): Double Major (CLA); Agriculture and Forestry; Pre-Theology; Languages (CLA); University College Majors; Law; Pre-Pharmacy; Pre-Agriculture and Forestry; Physical Education and Recreational Leadership; Mortuary Science; Dentistry; and Pre-Medical Technology.

Varying Ability. The percentages of High, Middle, and Low ability Nongraduate men in each of the general major fields tended to vary. The general major fields and percentages for each ability group are listed below:

No Major (CLA)
More Low (19.8%) than Middle (17.6%) or High (14.4%)

Pre-Business Administration
More Low (21.5%) than Middle (16.2%) or High (7.3%)

Social Sciences (CLA)
More High (15.1%) than Middle (10.0%) or Low (7.2%)

Verbal-Linguistic and the Arts (CLA)
More High (10.9%) than Low (8.8%) or Middle (7.9%)

General College Majors
More Low (9.7%) than Middle (4.8%) and No High (0.0%)

Natural Science or Mathematics (CLA)
More High (10.4%) than Middle (7.4%) or Low (4.5%)

Business Administration
More High (9.4%) than Middle (4.9%) or Low (3.2%)

Pre-Law
More Middle (4.4%) and Low (3.9%) than High (2.1%)

Pre-Education
More Middle (4.8%) and Low (3.3%) than High (1.6%)

Pre-Medicine
More High (10.4%) than Middle (4.3%) or Low (2.3%)

Pre-Engineering
More Low (4.2%) than Middle (2.7%) or High (1.6%)

Engineering or Science
More High (5.2%) than Middle (3.3%) or Low (2.2%)

Pre-Dentistry
More Middle (2.5%) and Low (2.0%) than High (0.5%)

Education (only this on transcript)
Similar: High (2.1%), Low (1.8%), and Middle (1.3%)

Interdisciplinary Studies (CLA)
More High (2.1%) and Middle (1.3%) than Low (0.9%)

Some of the more frequent major fields of the High, Middle, and Low ability Nongraduate men are listed below in descending rank order.

High	% of High	Middle	% of Middle	Low	% of Low
Soc Sci (CLA)	15.1	No Major (CLA)	17.6	Pre-Bus Adm	21.5
No Major (CLA)	14.1	Pre-Bus Adm	16.2	No Major (CLA)	19.8
Verb-Ling & Arts (CLA)	10.9	Soc Sci (CLA)	10.0	Gen Coll Majors	9.7
Nat Sci or Math (CLA)	10.4	Verb-Ling & Arts (CLA)	7.9	Verb-Ling & Arts (CLA)	8.8
Pre-Med	10.4	Nat Sci or Math (CLA)	7.4	Soc Sci (CLA)	7.2
Bus Adm	9.4	Bus Adm	4.9	Nat Sci or Math (CLA)	4.5
Pre-Bus Adm	7.3	Gen Coll Majors	4.8	Pre-Engin	4.2
Engin or Sci	5.2	Pre-Law	4.4	Pre-Law	3.9
Pre-Law	2.1	Pre-Med	4.3	Pre-Educ	3.3
Educ	2.1	Engin or Sci	3.3	Bus Adm	3.2
Interdis Studs (CLA)	2.1	Pre-Engin	2.7	Pre-Med	2.3
		Pre-Dent	2.5	Engin or Sci	2.2
				Pre-Dent	2.0

6. Women and Men - Nongraduates

While some variation existed in the major fields of the varying ability women and men, similarities also were present. For example, the four most frequent major fields for the High ability women Nongraduates were: No Major (CLA)--(19.6%); Verbal-Linguistic and the Arts (CLA)--(18.2%); Social Sciences (CLA)--(11.4%); and Natural Sciences or Mathematics (CLA)--(6.1%); and those for the High men were: Social Sciences (CLA)--(15.1%); No Major (CLA)--(14.1%); Verbal-Linguistic and the Arts (CLA)--(10.9%); Natural Sciences or Mathematics (CLA)--(10.4%); and Pre-Medicine--(10.4%).

Among the Middle women Nongraduates, the four most frequent majors were: No Major (CLA)--(28.1%); Verbal-Linguistic and the Arts (CLA)--(17.1%); Social Sciences (CLA)--(11.0%); and Pre-Education--(8.1%); and among the Middle men, No Major (CLA)--(17.6%); Pre-Business Administration--(16.2%); Social Sciences (CLA)--(10.0%); and Verbal-Linguistic and the Arts (CLA)--(7.9%).

The four most frequent majors for the Low ability women Nongraduates were: No Major (CLA)--(32.9%); Verbal-Linguistic and the Arts (CLA)--(13.7%); Social Sciences (CLA)--(9.0%); and Pre-Education (8.9%); whereas those for Low men were: Pre-Business Administration--(21.5%); No Major (CLA)--(19.8%); General College majors--(9.7%); and Verbal-Linguistic and the Arts (CLA)--(8.8%).

G. DEGREES EARNED

The kinds of baccalaureate degrees earned by the Graduates are shown in Table 22 (Appendix C); and the kinds of one- or two-year degrees or certificates earned by the Nongraduates in Table 23 (Appendix C).

1. Women - Graduates

The total Graduate women most frequently earned a Bachelor of Science (BS) degree (56.2%) and a Bachelor of Arts (BA) degree (40.1%). The BS degrees were conferred in such fields as education, home economics, nursing, medical technology, occupational therapy, physical therapy, pharmacy, and University College. The BA degrees were awarded by the College of Liberal Arts and the University College.

The BS degree was most frequently earned by Low ability (65.2%), followed by Middle (56.4%), and then High (48.7%) ability women. In contrast, more High (47.3%) than Middle (39.6%) or Low (31.8%) ability women earned a BA degree.

A Bachelor of Business Administration degree was earned by 1.3 percent of the women (more Middle, fewer Low ability). Less than one percent earned a one- or two-year certificate plus a bachelor's degree (15 women: more Middle, fewer High ability); a Graduate of Dental Hygiene degree (14 women: more Low, fewer High); double baccalaureate degrees (8 women: of whom 7 were High); as well as a Bachelor of Science in Business (5); a Bachelor of Science in Law (2); a Bachelor of Landscape Architecture (2); a Bachelor of Science in Economics (1); a Bachelor of Aeronautical Engineering (1); a Bachelor of Architecture (1); and a Degree of Associate in Mortuary Science (1)--all of which, with one exception, were earned by High and Middle ability women.

2. Men - Graduates

Over half of the total Graduate men earned a BA degree (51.7%), followed less frequently by a BS degree (17.4%), and a Bachelor of Business Administration (BBA) (17.3%).

The BA was most frequently earned by High ability (56.4%), followed by Middle (51.7%), and then Low (48.9%) ability men men. In contrast, more Low (19.8%) than Middle (17.8%) or High (11.6%) ability men earned a BBA degree. The percentages of the varying ability levels earning a BS degree were almost similar: High (18.3%), Middle (16.7%), and Low (17.6%).

Other degrees earned included Bachelor of Science in Business by 3.5% of the men (more Low, fewer High); Bachelor of Science in Law by 2.9% (more High, fewer Low); a one- or two-year certificate plus a bachelor's degree by 1.7% (more Low, fewer High); Bachelor of Mechanical Engineering by 1.2% (more Low, fewer High); and a Bachelor of Electrical Engineering by 1.0% (more Low, fewer High).

The following degrees were each earned by less than one percent of the men, with a representation of each ability level: Doctor of Dental Surgery, Bachelor of Aeronautical Engineering, Bachelor of Civil Engineering, double bachelors degrees, Bachelor of Architecture, Bachelor of Chemical Engineering, Degree of Associate in Mortuary Science, Bachelor of Agricultural Engineering, Bachelor of Geological Engineering, Bachelor of Metallurgy, and a Bachelor of Physics.

A Low ability male earned a Bachelor of Agricultural Business Administration; and the following degrees were each earned by a Middle ability male: Bachelor of Chemistry, Bachelor of Science in Geophysics, Bachelor of Mining Engineering, and Doctor of Veterinary Medicine.

3. Women and Men - Graduates

More of the Graduate women than men earned a BS degree (56.2% to 17.4%), whereas more of the men than women earned a BA degree (51.7% to 40.1%) and a BBA degree (17.3% to 1.3%). In addition, a wider variety of degrees were earned by the men.

The pattern for the varying ability levels generally tended to be the same for the BA degree, e.g., more frequently earned by High ability men as well as women. The pattern for the BS degree was reversed for the varying ability sex groups; that is, more Low ability women earned a BS degree as did more High ability men.

4. Women - Nongraduates

The vast majority (93.3%) of Nongraduate women did not earn a one- or two-year degree or certificate. Of those who did, the Associate in Liberal Arts (ALA from CLA) was earned by 5.6 percent.

The percentages of High, Middle, and Low ability earning a one- or two-year degree or certificate were greater for Low (7.6%), followed by Middle (6.6%), and then High (5.3%) ability Nongraduate women.

Other degrees or certificates earned included Associate of Arts (AA from General College); Certificate in Practical Nursing; and double one- and two-year degrees or certificates.

5. Men - Nongraduates

The greater majority (94.3%) of Nongraduate men did not earn a one- or two-year degree or certificate. Of those who did, the AA was earned by 3.2 percent and the ALA by 2.3 percent.

The percentages of High, Middle, and Low ability earning such degrees or certificates was greater for Low (7.3%) than for Middle (4.1%) or High (3.1%) ability.

6. Women and Men - Nongraduates

The vast majority of the Nongraduate women as well as the men did not earn one- and two-year degrees or certificates. Of those who did, the ALA was more frequently earned by the women; and the AA and ALA by the men.

More Low ability than Middle or High ability women and men tended to earn such degrees or certificates.

H. GRADE POINT AVERAGE

The frequency and percentage of cumulative grade point averages as well as the mean and standard deviation GPA's for the Graduate and Non-graduate varying ability women and men are shown in Tables 24, 25, 26, and 27 (Appendix C); and frequency polygons of the cumulative GPA's in Figures 5, 6, 7 and 8 (Appendix C).

1. Women and Men - Graduates

With the exceptions of GPA's of 3.50 - 4.00, which were earned by almost the same percentage of High ability men (19.0%) and women (18.5%) and of Low ability women (1.5%) and men (1.0%), the varying ability Graduate women tended to more frequently have higher GPA's than their men counterparts, as indicated below:

Ability	GPA	Women %	Men %
High:	3.00 - 3.49	40.0	32.0
	2.50 - 2.99	30.0	29.9
	2.00 - 2.49	11.2	18.0
Middle:	3.50 - 4.00	4.2	3.0
	3.00 - 3.49	21.5	13.8
	2.50 - 2.99	46.9	33.9
	2.00 - 2.49	26.3	47.2
Low:	3.00 - 3.49	13.0	5.0
	2.50 - 2.99	38.8	25.2
	2.00 - 2.49	45.6	64.8

The mean GPA's of the varying ability Graduate women were: High - 3.09; Middle - 2.74; and Low - 2.59; and of the Graduate men were: High - 2.99; Middle - 2.58; and Low - 2.39.

While all of the Graduate women and men were achieving at an average level of C or better, High women had the highest mean GPA and Low men the lowest mean GPA (3.09 and 2.39, respectively). These mean GPA's are listed below in rank order.

Graduates		GPA	Grade Equivalent
High	women	3.09	B
High	men	2.99	C+
Middle	women	2.74	C+
Low	women	2.59	C+
Middle	men	2.58	C+
Low	men	2.39	C

Statistically significant differences were found between these means and are listed below.

Mean GPA of:		Significantly Higher Than	Mean GPA of:	
High	Grad women	>	High	Grad men
			Middle	Grad men
			Low	Grad men
Middle	Grad women	>	Middle	Grad men
			Low	Grad men
Low	Grad women	>	Low	Grad men
High	Grad men	>	Middle	Grad women
			Low	Grad women

2. Women and Men - Nongraduates

High, Middle, and Low women Nongraduates more frequently had higher GPA's than did their men counterparts, as indicated below:

		Nongraduates	
Ability	GPA	Women %	Men %
High:	3.50 - 4.00	5.5	2.1
	3.00 - 3.49	17.6	10.4
	2.50 - 2.99	29.0	16.1
	2.00 - 2.49	30.4	35.4
	1.50 - 1.99	10.8	23.4
	1.00 - 1.49	2.2	7.3
Middle:	3.50 - 4.00	0.8	0.3
	3.00 - 3.49	4.5	2.3
	2.50 - 2.99	15.0	6.9
	2.00 - 2.49	32.6	24.3
	1.50 - 1.99	28.3	33.1
	1.00 - 1.49	10.4	18.7
Low:	3.50 - 4.00	0.3	0.1
	3.00 - 3.49	3.1	0.9
	2.50 - 2.99	10.1	3.9
	2.00 - 2.49	27.9	16.7
	1.50 - 1.99	33.4	36.7
	1.00 - 1.49	12.6	21.2

The mean GPA's of the varying ability women Nongraduates were: High - 2.48; Middle - 1.95; and Low - 1.78; and of the men Nongraduates were: High - 2.16; Middle - 1.69; and Low - 1.47.

High women and men Nongraduates were achieving at a C level, while the others were achieving at a D+ or D level. High women had the highest mean GPA and Low men the lowest mean GPA (2.48 and 1.47, respectively). These mean GPA's are listed below in rank order.

Nongraduates		GPA	Grade Equivalent
High	women	2.48	C
High	men	2.16	C
Middle	women	1.95	D+
Low	women	1.78	D+
Middle	men	1.69	D+
Low	men	1.47	D

Statistically significant differences were found between these means and are listed below.

Mean GPA of:		Significantly Higher Than	Mean GPA of:	
High	Nongrad women	>	High	Nongrad men
			Middle	Nongrad men
			Low	Nongrad men
Middle	Nongrad women	>	Middle	Nongrad men
			Low	Nongrad men
Low	Nongrad women	>	Middle	Nongrad men
			Low	Nongrad men
High	Nongrad men	>	Middle	Nongrad women
			Low	Nongrad women

I. HONORS

Honors earned by the women and men Graduates of varying ability are shown in Tables 28 and 29 (Appendix C).

1. Women - Graduates

Less than one-third (30.5%) of the 2,169 women Graduates graduated with honors. The kinds of honors earned were, in descending rank order: Distinction (13.4%); Cum laude (7.8%); Magna cum laude (4.8%); High Distinction (3.4%); and less than one percent earned Summa cum laude (0.8%) and double honors (0.2%).

Significantly more High (51.9%) ability women graduated with honors than did Middle (23.2%) or Low (13.3%) ability women; and significantly more Middle than Low ability women graduated with honors.

2. Men - Graduates

Approximately one-sixth (15.8%) of the 3,151 men Graduates graduated with honors; 84.2 percent did not. The kinds of honors earned were, in descending rank order: Cum laude (5.3%); Magna cum laude (3.9%); Distinction (3.7%); High Distinction (1.5%); and Summa cum laude (1.4%).

Significantly more High (39.3%) ability men graduated with honors than did Middle (13.7%) or Low (4.6%) ability men; and significantly more Middle than Low ability men graduated with honors.

3. Women and Men - Graduates

The distribution of honors - no honors were significantly different beyond the .00001 level for the women and men Graduates. Significance tests of differences between proportions provided more specific information about the nature of these differences.

Honors were earned by significantly more:

High ability women Graduates (51.9%) than High (39.3%), Middle (13.7%), and Low (4.6%) men Graduates.

Middle women Graduates (23.2%) than Middle (13.7%) and Low (4.6%) men Graduates.

Low women Graduates (13.3%) than Low (4.6%) men Graduates.

High men Graduates (39.3%) than Middle (23.2%) and Low (13.3%) women Graduates.

The rank order of honors earned by the varying ability women and men is listed below.

Graduates	Rank Order
High women	51.9%
High men	39.3%
Middle women	23.2%
Middle men	13.7%
Low women	13.3%
Low men	4.6%

Thus, each of the female ability levels earned more honors than their male counterpart and in descending rank order by ability level--High, Middle, Low. Honors were earned by over 50 percent of the High ability women (51.9%) and by less than five percent of the Low men (4.6%); and honors were earned by less than half of all the women and men ability levels, with the one exception of the High women.

J. CONTACT WITH THE STUDENT COUNSELING BUREAU

Data concerning the frequency and percentage of contact or no contact with the University of Minnesota Student Counseling Bureau are presented in Tables 30 and 31 in Appendix C. Also included are the chi-square analyses and tests of significance of differences between proportions.

1. Women and Men - Graduates

Less than half, but almost half, of the men Graduates (47.7%) had contact with the Student Counseling Bureau (SCB) at the University of Minnesota. Over half of the Low and High ability men and slightly less than half of the Middle men had contact. More Low (58.1%) than High (51.6%) or Middle (47.1%) men Graduates had contact with the Counseling Bureau.

Less than half of the women Graduates (41.6%) had contact with SCB. While the percentage of contact was similar among the ability groups, more High (43.2%) than Low (41.9%) or Middle (40.0%) women Graduates had contact.

While less than half of the women and men Graduates had SCB contact, more men than women Graduates had such contact. The distributions of contact - no contact with the Counseling Bureau were significantly different beyond the .00001 level for the women and men Graduates of varying ability. Significance tests of differences between proportions provided more specific information about these differences.

Contact with the Counseling Bureau occurred among significantly more:

High ability men Graduates (51.6%) than High (43.2%), Middle (40.0%), and Low (41.9%) ability women Graduates.

Middle men Graduates (47.1%) than Middle (40.0%) and Low (41.9%) women Graduates.

Low men Graduates (58.1%) than High (43.2%), Middle (40.0%), and Low (41.9%) women Graduates.

Thus, more High, Middle, and Low men Graduates had contact with SCB than did High, Middle, and Low women Graduates.

2. Women and Men - Nongraduates

Approximately one-third of the men Nongraduates (32.9%) had contact with the Student Counseling Bureau. Among the varying ability levels, more High (42.2%) than Low (37.8%) or Middle (36.3%) men Nongraduates had contact.

While far less than half of the women and men Nongraduates had contact with the Counseling Bureau, more of the High, Middle, and Low men had such contact. The distributions of contact - no contact with the Counseling Bureau were significantly different beyond the .00001 level for women and men Nongraduates of varying ability. Tests of differences between proportions provided more information about the nature of these differences.

Contact with the Counseling Bureau occurred among significantly more:

> High ability men Nongraduates (42.2%) than High (31.4%), Middle (29.2%), and Low (25.4%) ability women Nongraduates.
>
> Middle men Nongraduates (36.3%) than Middle (29.2%) and Low (25.4%) women Nongraduates.
>
> Low men Nongraduates (37.8%) than High (31.4%), Middle (29.2%), and Low (25.4%) women Nongraduates.

Thus, High and Low men Nongraduates more frequently had contact with the Counseling Bureau than did High, Middle, and Low women Nongraduates; and Middle men Nongraduates more frequently than Middle and Low women Graduates.

K. SUMMARY: DESCRIPTIVE ACADEMIC VARIABLES RESULTS

Below are summarized the results of the descriptive analyses of the academic variable. Results for Graduates are described first, Nongraduates second.

1. Graduates - Women and Men

Persistence. Graduation with a baccalaureate degree was achieved by less than half (2,169) of the 4,633 women and by more than half (3,151) of the 5,658 men (46.8% and 55.7%, respectively). Among the High ability, more women than men graduated (16.3% and 11.3%, respectively). However, more men than women of Middle ability (24.9% vs. 17.5%) and of Low ability (19.5% vs. 13.0%) graduated.

ACE. The mean ACE scores of the High ability women and men Graduates were similar, although the men were slightly higher (93.74 and 92.57, respectively). That of the Middle men was somewhat higher than that of Middle women (78.33 vs. 74.77); and the same was true for Low men and women but with a greater difference (43.97 vs. 31.42).

HSR. The mean HSR's of the High ability women and men Graduates were similar, although the women were slightly higher (96.23 and 95.77, respectively). Middle ability women had a higher mean HSR than Middle men (84.05 vs. 76.32); and Low women a higher mean HSR than Low men Graduates (78.87 vs. 60.60).

Number of Quarters of Academic Attendance. The total Graduate women took an average of 13.04 quarters and the total Graduate men 13.79 quarters to complete their degree work. The average graduation time was similar for High, Middle, and Low women; 12.79, 13.04, and 13.36 quarters, respectively; and similar for High, Middle, and Low men: 13.31, 13.66, and 14.22 quarters, respectively, although Low ability men took a slightly longer period of time.

Generally speaking, the pattern of attendance to graduation was similar for the women and men Graduates, e.g., the most frequent quarters of graduation were the twelfth and thirteenth quarters; and the patterns among the High, Middle, and Low women and men were similar. However, the men took longer to graduate than the women; this was true for the total men and total women as well as among the varying ability levels for each sex. For example, the total women Graduates took 6 to 24 quarters to graduate, whereas the men took 6 to 33 quarters (9 more quarters). In addition, far more women than men graduated by the end of 12 quarters (46.4% vs. 33.0%), as well as by the end of 13 quarters (73.0% vs. 58.7%) and 14 quarters (84.1% vs. 62.8%).

These above patterns were similar for the varying ability Graduate women and men, but the differences were greater among the varying ability men, and, especially the differences between High and Low men. Over half of the High ability women but less than half of the men graduated by the end of 12 quarters (52.8% vs. 44.5%), and more High women than men graduated by the end of 13 quarters (76.7% vs. 70.4%) and 14 quarters (84.4% vs. 80.9%)

Among the Middle ability, far more women than men graduated by the end of 12 quarters (43.4% vs. 35.3%), by the end of 13 quarters (71.6% vs. 61.1%), and 14 quarters (82.7% vs. 65.3%).

Among the Low ability, far more women than men graduated by the end of 12 quarters (35.4% vs. 23.6%), 13 quarters (63.4% vs. 49.0%), and 14 quarters (78.7% vs. 65.1%).

In all of these comparisons, the High ability graduated sooner, i.e., in less time, than did the Middle and Low ability; and the Middle ability sooner than the Low ability.

College of Enrollment. The pattern of college enrollment tended to differ for the women and men Graduates as well as for the varying ability levels. At the time of graduation from the U of M, men were enrolled in more colleges than were women; and more men than women were enrolled in CLA (51.7% vs. 39.1%), in Business (21.9% vs. 1.7%), in Dentistry (4.2% vs. 0.7%), in IT (4.1% vs. 0.1%), in Law (3.4% vs. 0.2%), and in Pharmacy (3.4% vs. 0.2%). More women than men Graduates were enrolled in Education (34.8% vs. 9.4%), College of Medical Sciences (18.7% vs. 1.7%), AFHE (2.2% vs. 1.0%), and University College (1.9% vs. 1.0%).

Among the women Graduates, the High ability were more frequently enrolled in CLA (46.0%); the Low ability in Education (42.6%); and the Middle ability were distributed about evenly in CLA (38.7%) and Education (36.5%).

Among the men Graduates, the High, Middle, and Low ability were more frequently enrolled in CLA, but more of the High (54.7%) than the Low (49.2%) or Middle (52.2%) were so enrolled; and Business had more Low (25.2%) than High (15.7%) or Middle (22.0%) men.

Major Fields of Study. While most, although not all, of the major fields had a representation of both women and men Graduates as well as each ability level, the frequency of enrollment in the major fields varied to some extent by sex and ability.

Over one-half of the total women Graduates were in the following general major fields: Social Sciences (CLA)--(16.3%); Elementary Education--(14.7%); Verbal-Linguistic and the Arts (CLA)--(12.0%); and Nursing--(9.4%). Slightly less than 25 percent more were in Interdisciplinary Studies (CLA)--(5.1%); Verbal-Linguistic and the Arts (Secondary Education)--(4.9%); Medical Technology--(4.4%); Languages (Secondary Education)--(3.3%);

Nursery, Kindergarten and Primary Education-- (3.2%); and Occupational Therapy--(3.0%).

Over one-half of the total men Graduates were in the following general major fields: Social Sciences (CLA)--(24.8%); Business Administration--(22.0%); and Verbal-Linguistic and the Arts (CLA)--(9.9%). Over twenty-five percent more were in: Natural Sciences or Mathematics (CLA)--(5.6%); Pre-Medicine--(5.1%); Dentistry--(4.2%); Engineering or Science--(4.1%); Interdisciplinary Studies (CLA)--(3.3%); and Law--(3.3%).

The four most frequent majors for High ability women Graduates were Social Sciences (CLA)--(18.5%); Verbal-Linguistic and the Arts (CLA)--(14.3%); Elementary Education--(8.6%); and Nursing--(8.6%); and those for High men were Social Sciences (CLA)--(17.1%); Business Administration--(15.7%); Pre-Medicine--(11.9%); and Natural Sciences or Mathematics (CLA)--(10.0%).

Among the Middle ability, the four most frequent majors for women were Social Sciences (CLA)--(16.5%); Elementary Education--(16.2%); Verbal-Linguistic and the Arts (CLA)--(12.7%); and Nursing--(9.4%); in comparison to those for the Middle men of Social Sciences (CLA)--(26.5%); Business Administration--(22.1%); Verbal Linguistic and the Arts (CLA)--(9.9%); and Natural Sciences or Mathematics (CLA)--(5.3%).

Low ability women had their four most frequent majors in Elementary Education--(20.3%); Social Sciences (CLA)--(13.3%); Nursing--(10.5%); and Verbal-Linguistic and the Arts (CLA)--(8.2%); in contrast to those for the Low men of Social Sciences (CLA)--(27.1%); Business Administration--(25.5%); Engineering or Science--(4.8%); and Dentistry--(3.9%).

Degrees Earned. More of the women than men Graduates earned a BS degree (56.2% vs. 17.4%); whereas more of the men than women earned a BA degree (51.7% vs. 40.1%) and a BBA degree (17.3% to 1.3%).

In addition, a wider variety of degrees was earned by the men. Other degrees for the men included BS in Business; BS in Law; BS in Geophysics; Bachelor's of Mechanical Engineering, Electrical Engineering, Aeronautical Engineering, Civil Engineering, Chemical Engineering, Agricultural Engineering, Geological Engineering, Mining Engineering, Metallurgy, Physics, Chemistry, and Agricultural Business Administration; Degree of Associate in Mortuary Science; Doctors of Dental Surgery and of Veterinary Medicine. Other degrees earned by the women were BBA; BS in Business; BS in Economics; BS in Law; Bachelor's of Landscape Architecture, Architecture, and Aeronautical Engineering; Graduate of Dental Hygiene; and Degree of Associate in Mortuary Science.

The pattern for the varying ability levels generally tended to be the same for the BA degree, e.g., more frequently earned by High ability men as well as women. The pattern for the BS degree was reversed for the varying ability sex groups, i.e., more Low ability women and more High ability men earned a BS degree.

Women Graduates most frequently earned a BS degree (56.2%) and a BA degree (40.1%). The BS degree was most frequently earned by Low (65.2%) women followed by Middle (56.4%) and then High (48.7%) women. In contrast, a BA degree was most frequently earned by High (47.3%) women followed by Middle (39.6%) and Low (31.8%) women.

Men Graduates most frequently earned a BA degree (51.7%) followed less frequently by a BS degree (17.4%), and a BBA degree (17.3%). The BA was most frequently earned by High (56.4%) men followed by Middle (51.7%) and Low (48.9%) men. In contrast, a BBA degree was earned most frequently by Low (19.8%) than Middle (17.8%) or High (11.6%) men. The BS degree was earned by similar percentages: High (18.3%), Middle (16.7%), and Low (17.6%).

Grade Point Average. Women Graduates of High, Middle, and Low ability tended to more frequently have higher GPA's than their men counterparts. While all of the women and men Graduates were achieving at an average level of C or better (the High women at a B level), High women had the highest mean GPA and Low men the lowest mean GPA. The mean GPA's, in rank order, were: High women (3.09), High men (2.99), Middle women (2.74), Low women (2.59), Middle men (2.58), and Low men (2.39).

Statistically significant differences were found between these GPA means. High women Graduates had a higher mean GPA than High, Middle, and Low men; Middle women had a higher mean GPA than Middle and Low men; and Low women had a higher mean GPA than Low men. High men Graduates had a higher mean GPA than Middle and Low women.

Honors. Graduation with honors (summa, magna, or cum laude; High Distinction or Distinction) was achieved by 30.5 percent of the 2,169 women Graduates and by 15.8 percent of the 3,151 men Graduates.

Honors were achieved by less than half of all the women and men ability levels, with the one exception of the High women. Significantly more High (51.9%) ability women graduated with honors than did Middle (23.2%) or Low (13.3%) ability women; and significantly more Middle than Low ability women graduated with honors. Significantly more High (39.3%) ability men graduated with honors than did Middle (13.7%) or Low (4.6%) ability men; and significantly more Middle than Low men graduated with honors.

Each of the female ability levels more frequently achieved honors than the male counterpart and in descending rank order by ability level--High, Middle, Low. Significantly more High women than High, Middle, and Low men graduated with honors; significantly more Middle women than Middle and Low men; and significantly more Low women than Low men. Also, significantly more High men than Middle and Low women graduated with honors.

Contact with the Student Counseling Bureau. Almost half of the men and less than half of the women Graduates had contact with the Counseling Bureau (47.7% vs. 41.6%).

More Low (58.1%) than High (51.6%) or Middle (47.1%) men Graduates had SCB contact. Although the percentages were similar, more High (43.2%) than Low (41.9%) or Middle (40.0%) women Graduates had SCB contact.

Contact occurred among: significantly more High men than High, Middle, and Low men; significantly more Middle men than Middle and Low women; and significantly more Low men than High, Middle, and Low women Graduates.

2. Nongraduates - Women and Men

Persistence. Over half (2,464) of the 4,633 women withdrew from the U of M in contrast to less than half (2,507) of the 5,658 men (53.2% and 49.3%, respectively). More women than men of High ability withdrew (11.0% vs. 3.4%); and more Middle ability women than men withdrew (21.8% vs. 17.7%). However, more Low ability men than women withdrew (23.2% vs. 20.4%).

ACE. High ability women Nongraduates had a similar, but slightly higher, mean ACE score than the High men (92.23 and 91.63, respectively). The reverse was true for the Middle men and women where the men had a slightly higher mean ACE score (78.71 vs. 75.49); and for the Low men and women, but with a greater difference (48.19 vs. 34.43).

HSR. High ability women Nongraduates had a similar, but slightly higher, mean HSR than the High men (95.46 and 94.87, respectively). Greater differences in mean HSR were found for the Middle ability women and men (78.44 vs. 71.53); and especially for the Low women and men (70.35 vs. 51.99).

Number of Quarters of Academic Attendance. The average length of attendance for the total Nongraduate women was 5.12 quarters and for the total men 5.79 quarters. The average attendance time was similar for High, Middle, and Low ability women: 5.88, 5.15, and 4.68 quarters, respectively; and similar for High, Middle, and Low men: 6.97, 6.00, and 5.46 quarters, respectively.

Generally speaking, the pattern of attendance before withdrawal was somewhat similar, although not precisely similar for the women and men Nongraduates, e.g., the most frequent individual quarters of withdrawal were the third and sixth, although it was also the first quarter for the men; and the patterns among the High, Middle, and Low ability women and men also were similar. The men, however, stayed around longer before withdrawal than did the women; this was true for the total women and total men as well as among the varying ability levels for each sex. For example, the total women Nongraduates were in attendance from less than one to 45 quarters before withdrawal, whereas the total men Nongraduates were in attendance from less than one to 73 quarters (28 more quarters). In addition, more women than men withdrew by the end of three quarters (44.0% vs. 39.6%), by the end of six quarters (71.8% vs. 62.5%), and by the end of nine quarters (88.7% vs. 81.7%).

These above patterns were generally similar for the varying ability Nongraduate women and men. Slightly more of the High ability Nongraduate men than women withdrew by the end of the first full quarter (11.5% vs. 9.0%); although more High women than men withdrew by the end of three (37.8% vs. 34.4%), six (64.9% vs. 52.1%), and nine quarters (83.5% vs. 71.5%).

Among the middle ability, slightly more men than women withdrew by the end of the first full quarter (16.6% vs. 15.7%); but, as above, more Middle ability women than men withdrew by the end of three (43.9% vs. 39.1%), six (70.7% vs. 61.1%), and nine (88.8% vs. 80.1%) quarters.

A similar pattern, although to a greater extent, held true for the Low ability: more men than women left by the end of the first full quarter (19.4% vs. 16.0%); but more women than men left by the end of three (47.4% vs. 40.7%), six (76.6% vs. 65.1%) and nine (91.4% vs. 84.3%) quarters.

In all of these comparisons, the High ability remained in attendance a longer period of time than did the Middle and Low ability; and the Middle ability longer than the Low ability. That is, the Low ability withdrew from the U of M sooner than the Middle and High ability.

College of Enrollment. The patterns of college enrollment at the time of withdrawal from the University tended to have both similarities and differences between the women and men Nongraduates. The vast majority of both, although slightly more women (89.1%) than men (82.4%) were enrolled in CLA. More women than men were enrolled in Education (5.1% vs. 2.0%) and in Medical Sciences (1.5%) vs. 0.1%); and more men than women were enrolled in General College (6.9% vs. 2.3%), Business (4.1% vs. 0.6%), and IT (2.9% vs. 0.1%).

The pattern for women Nongraduates held true for almost similar percentages of the High, Middle, and Low ability, although slightly more Low (5.6%) than Middle (4.7%) or High (4.9%) were in Education; and slightly more High (2.4%) than Low (1.0%) or Middle (1.5%) ability were in Medical Sciences.

While almost similar percentages of High, Middle, and Low ability Nongraduate men were enrolled in CLA and in Education, other differences tended to exist in their colleges of enrollment. More Low (9.8%) than Middle (4.5%) ability were enrolled in General College, but no High ability Nongraduate men were enrolled. More High (9.4%) than Low (3.1%) or Middle (4.5%) ability were enrolled in Business.

Major Fields of Study. While some variation existed in the major fields of the varying ability women and men Nongraduates, similarities also were present.

Over one-half of the total Nongraduate women had either No Major (in CLA)--(28.2%) or were in Verbal-Linguistic and the Arts (CLA)--(16.0%); or Social Sciences (CLA)--(10.3%). An additional 33 percent were in one of the following: Pre-Education--(7.6%); Pre-Nursing--(5.9%); Pre-Business Administration--(3.9%); Pre-Medical Technology--(3.8%); Education (only this on transcript)--(2.8%); "Other" majors (CLA)--(2.4%); Interdisciplinary Studies (CLA)--(2.2%); Natural Sciences or Mathematics (CLA)--(2.2%); and General College majors--(2.2%).

Over one-half of the total Nongraduate men had either No Major (in CLA)--(18.5%), or were in Pre-Business Administration--(18.3%); or Social Sciences (CLA)--(8.9%); or Verbal-Linguistic and the Arts (CLA)--(8.6%). An additional 33 percent were in one of the following: General College majors--(7.0%); Natural Sciences or Mathematics (CLA)--(6.1%); Business Administration--(4.3%); Pre-Law--(3.9%); Pre-Education--(3.7%); Pre-Medicine--(3.7%); Pre-Engineering--(3.4%); Engineering or Science--(2.9%); and Pre-Dentistry--(2.1%).

The four most frequent major fields for the High ability women Nongraduates were: No Major (CLA)--(19.6%); Verbal-Linguistic and the Arts (CLA)--(18.2%); Social Sciences (CLA)--(11.4%); and Natural Sciences or Mathematics (CLA)--(6.1%). The most frequent majors for High men were Social Sciences (CLA)--(15.1%); No Major (CLA)--(14.1%); Verbal-Linguistic and the Arts (CLA)--(10.9%); Natural Sciences or Mathematics (CLA)--(10.4%); and Pre-Medicine--(10.4%).

Among the Middle ability, the four most frequent majors for women were: No Major (CLA)--(28.1%); Verbal-Linguistic and the Arts (CLA)--(17.1%); Social Sciences (CLA)--(11.0%); and Pre-Education--(8.1%). Those for men were: No Major (CLA)--(17.6%); Pre-Business Administration--(16.2%); Social Sciences (CLA)--(10.0%); and Verbal-Linguistic and the Arts (CLA)--(7.9%).

The four most frequent majors for the Low ability Nongraduate women were No Major (CLA)--(32.9%); Verbal-Linguistic and the Arts (CLA)--(13.7%); Social Sciences (CLA)--(9.0%); and Pre-Education (8.9%); whereas those for Low men were Pre-Business Administration--(21.5%); No Major (CLA)--(19.8%); General College majors--(9.7%); and Verbal-Linguistic and the Arts (CLA)--(8.8%).

Degrees Earned. The vast majority of the Nongraduate women (93.3%) and men (94.3%) did not earn a one- or two-year degree or certificate. Among those who did, the women more frequently earned an ALA--Associate of Liberal Arts from CLA--(5.6%), whereas the men more frequently earned an AA--Associate of Arts from General College--(3.2%) or an ALA--(2.3%).

More Low than Middle or High ability women and men tended to earn such degrees or certificates: for women--Low (7.6%), Middle (6.6%), High (5.3%); and for men--Low (7.3%), Middle (4.1%), High (3.1%).

Grade Point Average. High, Middle, and Low women Nongraduates more frequently had higher GPA's than did their men counterparts. High women and men Nongraduates were achieving at a C level, while the others were achieving at a D+ or D level. High women had the highest mean GPA and Low men the lowest mean GPA. The mean GPA's, in rank order, were: High women (2.48), High men (2.16), Middle women (1.95), Low women (1.78), Middle women (1.69), and Low men (1.47).

Statistically significant differences were found between these GPA means. High women Nongraduates had a significantly higher mean GPA than

High, Middle, and Low men; Middle women had a higher mean GPA than Middle and Low men; and Low women had a higher mean GPA than Middle and Low men. High men Nongraduates had a higher mean GPA than Middle and Low women.

Contact with the Student Counseling Bureau. While far less than half of the women (28.2%) and men (32.9%) Nongraduates had contact with the Counseling Bureau, more of the High, Middle, and Low men had such contact.

Contact occurred among significantly more High men (42.2%) than High (31.4%), Middle (29.2%), and Low (25.4%) women Nongraduates; significantly more Middle men (36.3%) than Middle and Low women; and significantly more Low men (37.8%) than High, Middle, and Low women Nongraduates.

Within the sexes, more High than Low or Middle men Nongraduates had contact; and more High than Middle or Low women had contact.

CHAPTER VI

RESULTS: PERSONALITY CHARACTERISTICS

Chapter VI reports the results of the analyses concerned with the differences in MMPI scores of Graduate and Nongraduate women and men of varying ability. This chapter includes the mean MMPI scores and results of the analyses using single MMPI scales. Most of the tables and figures which show these data are contained in Appendix D; some tables and figures are contained in this chapter. A discussion of the MMPI results is contained in Chapter VII.

A. MEAN MMPI SCORES

1. Women and Men - Graduates

The mean and standard deviation MMPI raw scores and the mean T scores for the women and men Graduates of varying ability are given in Table 32 (Appendix D). Figures 9, 10, 11, 12, 13, and 14 (Appendix D) portray the mean MMPI profiles for each of the Graduate women and men High, Middle, and Low ability groups.

All of the mean scores were either within the 50 - 69 T score range or below 49. However, women and men Graduates of varying ability had significantly different mean scores on all 13 MMPI scales. Student's t test was used to test the significance of differences between raw score means. These significant differences are listed below in terms of the equivalent T score mean. A few of the significantly different raw score means had the same equivalent T score; however, most of the mean T score differences ranged 1 to 16 points.

Graduate	Higher Mean T Score than	Graduate	Mean T Score		Mean T Score
Scale L					
High women	>	High men	48	>	45
		Middle "			45
		Low "			46
Middle women	>	High men	48	>	45
		Middle "			45
		Low "			46
Low women	>	High men	48	>	45
		Middle "			45
		Low "			46
Scale F					
Middle men	>	High women	51	>	49
		Middle "			49
		Low "			50
Low men	>	High women	52	>	49
		Middle "			49
		Low "			50
Scale K					
High women	>	High men	57	>	55
		Middle "			55
		Low "			56
Middle women	>	High men	57	>	55
		Middle "			55
		Low "			56
Low women	>	High men	57	>	55
		Middle "			55

Graduate	Higher Mean T Score than	Graduate	Mean T Score		Mean T Score
Scale 1 (Hs)					
High men	>	High women	51	>	48
		Middle "			48
		Low "			49
Middle men	>	Low women	52	>	49
Low men	>	High women	58	>	48
		Middle "			48
		Low "			50
Scale 2 (D)					
High men	>	High women	51	>	47
		Middle "			47
		Low "			48
Middle men	>	High women	49	>	47
		Middle "			47
		Low "			48
Low men	>	High women	52	>	47
		Middle "			47
		Low "			48
Scale 3 (Hy)					
High men	>	High women	56	>	53
		Middle "			53
		Low "			54
Middle men	>	High women	55	>	53
		Middle "			53
		Low "			54
Low men	>	High women	56	>	53
		Middle "			53
		Low "			54

Graduate	Higher Mean T Score than	Graduate	Mean T Score		Mean T Score
Scale 4 (Pd)					
High men	>	High women	55	>	54
		Middle "			54
Middle men	>	High women	57	>	54
		Middle "			54
		Low "			55
Low men	>	High women	62	>	54
		Middle "			54
		Low "			55
Scale 5 (Mf)					
High men	>	High women	61	>	47
		Middle "			47
		Low "			49
Middle men	>	High women	58	>	47
		Middle "			47
		Low "			49
Low men	>	High women	57	>	47
		Middle "			47
		Low "			49
Scale 6 (Pa)					
High women	>	High men	55	>	54
		Middle "			53
		Low "			53
Middle women	>	Middle men	54	>	53
		Low "			53
Low women	>	Middle men	55	=	55

Graduate	Higher Mean T Score than	Graduate	Mean T Score		Mean T Score
Scale 7 (Pt)					
High men	>	High women	55	>	52
		Middle "			53
		Low "		=	55
Middle men	>	Low women	58	>	55
Low men	>	High women	69	>	53
		Middle "			53
		Low "			55
Scale 8 (Sc)					
High women	>	High men	55	>	54
Low women	>	High men	55	>	54
Middle men	>	High women	58	>	55
		Middle "			54
Low men	>	High women	67	>	55
		Middle "			54
		Low "			55
Scale 9 (Ma)					
Middle men	>	High women	57	>	53
		Middle "			54
		Low "			55
Low men	>	High women	59	>	53
		Middle "			54
		Low "			55
Scale 10 (Si)					
High women	>	Middle men	50	>	48
		Low "			48
Middle women	>	Middle men	49	>	48
Low women	>	Middle men	49	>	48

High women Graduates had higher mean T scores than High, Middle, and Low ability men on Scales L, K, and 6; and lower mean T scores on 2, 3, 4, and 5. In addition, High women had lower mean scores than High and Low men on Scales 1 and 7; and lower mean scores than Middle and Low men on Scales F, 9, and 8 (but higher than High men on Scale 8).

Middle women Graduates had higher mean T scores than High, Middle, and Low ability men on Scales L and K; and lower mean T scores on Scales 2, 3, 4, and 5. In addition, Middle women had lower mean scores than High and Low men on Scales 1 and 7; lower mean scores than Middle and Low men on Scales F and 9, and a higher mean score on Scale 6. Middle women also had a higher mean score than Middle men on Scale 10.

Low women Graduates had higher mean T scores than High, Middle, and Low ability men on Scale L, and lower mean T scores on Scales 1, 2, 3, 5, and 7. In addition, Low women had lower mean scores than Middle and Low men on Scales F, 4, and 9. Low women also had a higher mean score than High and Middle men on Scale K; a higher mean score than Middle men on Scale 6; and a lower mean score than Low men on Scale 8 (but higher than High men).

The MMPI scales on which High, Middle, and Low ability women Graduates consistently received *lower* mean T scores than High, Middle, and Low men were 2, 3, and 5; and consistently *higher* was Scale L. High and Middle women consistently received *lower* mean T scores than High, Middle, and Low men on Scale 4, and *higher* mean scores on Scale K.

High men Graduates had higher mean T scores than High, Middle, and Low ability women on Scales 1, 2, 3, 5, and 7; and lower mean T scores on Scale L. In addition, High men had a lower mean T score than High women on Scale 6. High men also had a higher mean score than High and Middle women on Scale 4; a lower mean score than High and Low women on Scale 8; and a lower mean score than Low women on Scale 9.

Middle men Graduates had higher mean T scores than High, Middle, and Low ability women on Scales F, 2, 3, 4, 5, and 9; and lower mean scores on L, 6, and 10. In addition, Middle men had a higher mean score than Low women on Scale 1; and a higher mean score than High and Middle women on Scale 8.

Low men Graduates had higher mean T scores than High, Middle, and Low ability women on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9; and a lower mean score on Scale L. In addition, Low men had a lower mean score than High and Middle women on Scale 6; and a lower mean score than High women on Scale 10.

The MMPI scales on which all three groups of High, Middle, and Low ability men Graduates received higher mean T scores than all three groups of High, Middle, and Low ability women Graduates were 2, 3, and 5; and consistently lower was Scale L. The MMPI scales on which High and Low men Nongraduates consistently received higher mean scores than all three groups of High, Middle, and Low women were 1 and 7. Middle and Low men received higher mean T scores than High, Middle, and Low women on Scales F, 4, and 9.

All of these differences for the women Graduates and for the men Graduates are summarized in Tables 33 and 34 .

Table 33

Summary of Differences in MMPI Mean T Scores for Women Graduates Compared to Men Graduates of Varying Ability

Graduates	Women	
	Higher Mean T Scores	Lower Mean T Scores
HIGH WOMEN vs High men	L K 6 8	1 2 3 4 5 7
Middle men	L K 6 10	F 2 3 4 5 8 9
Low men	L K 6 10	F 1 2 3 4 5 7 8 9
MIDDLE WOMEN vs High men	L K 9	1 2 3 4 5 7
Middle men	L K 6	F 2 3 4 5 8 9
Low men	L K 6 10	F 1 2 3 4 5 7 8 9
LOW WOMEN vs High men	L K 8	1 2 3 5 7
Middle men	L K 6 10	F 1 2 3 4 5 7 9
Low men	L	F 1 2 3 4 5 7 8 9

Table 34

Summary of Differences in MMPI T Scores for Men Graduates Compared to Women Graduates of Varying Ability

Graduates	Men												
	Higher Mean T Scores									Lower Mean T Scores			
HIGH MEN vs High women		1	2	3	4	5	7			L	6	8	
Middle women		1	2	3	4	5	7			L			
Low women		1	2	3		5	7			L		8	
MIDDLE MEN vs High women	F		2	3	4	5		8	9	L	6		10
Middle women	F		2	3	4	5		8	9	L	6		10
Low women	F	1	2	3	4	5	7		9	L	6		10
LOW MEN vs High women	F	1	2	3	4	5	7	8	9	L	6		10
Middle women	F	1	2	3	4	5	7	8	9	L	6		
Low women	F	1	2	3	4	5	7	8	9	L			

2. Women and Men - Nongraduates

The mean and standard deviation MMPI raw scores and the mean T scores for the women and men Nongraduates of varying ability are provided in Table 35 (Appendix D). Figures 15, 16, 17, 18, 19, and 20 (Appendix D) illustrate the mean MMPI profiles for each of the Nongraduate women and men High, Middle, and Low ability groups.

All of the mean scores were either within the 50 - 69 T score range or below 49. However, women and men Nongraduates of varying ability had significantly different mean scores on all 13 MMPI scales. The raw score mean differences were tested for statistical significance using Student's t test. The significant differences are listed below in terms of the equivalent T score mean. A few of the significantly different raw score means had the same equivalent T score. However, most of the mean T score differences ranged 1 to 13 points.

Nongraduate	Higher Mean T Score than	Nongraduate	Mean T Score		Mean T Score
Scale L					
High women	>	Middle men	47	>	46
Middle women	>	Middle men	47	>	46
Low women	>	High men	48	>	46
		Middle "			46
		Low "			46
Scale F					
Middle men	>	High women	52	>	49
		Middle "			50
		Low "			51
Low men	>	High women	52	>	49
		Middle "			50
		Low "			51
Scale K					
High women	>	Middle men	56	>	55
		Low "			54
Middle women	>	Low men	55	>	54
Low women	>	Middle men	55	=	55
		Low "			54
Scale 1 (Hs)					
High men	>	High women	51	>	48
		Middle "			49
		Low "			48
Low men	>	High women	57	>	48
		Middle "			49
		Low "			48

Nongraduate	Higher Mean T Score than	Nongraduate	Mean T Score		Mean T Score
Scale 2 (D)					
High men	>	High women	48	>	47
		Middle "			47
		Low "		=	48
Middle men	>	High women	49	>	47
		Middle "			47
		Low "			48
Low men	>	High women	51	>	47
		Middle "			47
		Low "			48
Scale 3 (Hy)					
High men	>	High women	56	>	54
		Middle "			53
		Low "			54
Middle men	>	High women	55	>	54
		Middle "			53
		Low "			54
Low men	>	High women	55	>	54
		Middle "			53
		Low "			54
Scale 4 (Pd)					
High men	>	High women	56	>	55
Middle men	>	High women	57	>	55
		Middle "			55
		Low "			56
Low men	>	High women	60	>	55
		Middle "			55
		Low "			56

Nongraduate	Higher Mean T Score than	Nongraduate	Mean T Score		Mean T Score
Scale 5 (Mf)					
High men	>	High women	60	>	47
		Middle "			48
		Low "			49
Middle men	>	High women	57	>	47
		Middle "			48
		Low "			49
Low men	>	High women	55	>	47
		Middle "			48
		Low "			49
Scale 6 (Pa)					
High women	>	Middle men	55	>	50
		Low "			49
Middle women	>	Middle men	54	>	50
		Low "			49
Low women	>	Middle men	55	>	50
		Low "			49
Scale 7 (Pt)					
High men	>	High women	54	>	53
		Middle "			53
		Low "		=	54
Middle men	>	Low women	58	>	54
Low men	>	High women	66	>	53
		Middle "			53
		Low "			54

Nongraduate	Higher Mean T Score than	Nongraduate	Mean T Score		Mean T Score
Scale 8 (Sc)					
Low women	>	High men	55	=	55
Middle men	>	High women	58	>	54
		Middle "			54
		Low "			55
Low men	>	High women	66	>	54
		Middle "			54
		Low "			55
Scale 9 (Ma)					
High men	>	High women	57	>	54
		Middle "			55
Middle men	>	High women	58	>	54
		Middle "			55
		Low "			57
Low men	>	High women	60	>	54
		Middle "			55
		Low "			57
Scale 10 (Si)					
High women	>	High men	49	>	47
		Middle "			47
		Low "			47
Middle women	>	High men	48	>	47
		Middle "			47
		Low "			47
Low women	>	Middle men	48	>	47

High women Nongraduates had lower mean MMPI T scores than High, Middle, and Low ability men on Scales 2, 3, 4, 5, and 9; and a higher mean score on Scale 10. In addition, High women had lower mean scores than Middle and Low men on Scales F and 8, and higher mean scores on Scales K and 6. High women also had a lower mean score than High and Low men on Scale 1; and a higher mean score than Middle men on Scale L.

Middle women Nongraduates had lower mean T scores than High, Middle, and Low ability men on Scales 2, 3, 5, and 9; and a higher mean score on Scale 10. Middle women Nongraduates also had lower mean T scores than High and Low men on Scales 1 and 7; and lower mean T scores than Middle and Low men on Scales F, 4, and 8 as well as a higher mean score on Scale 6. In addition, Middle women had a higher mean score than Middle men Nongraduates on Scale L; and a higher mean score than Low men on Scale K.

Low women Nongraduates had lower mean MMPI T scores than High, Middle, and Low men on Scales 2, 3, 5, and 7; and a higher mean score on Scale L. Low women also had lower mean T scores than Middle and Low men Nongraduates on Scales F, 4, 8, and 9; and higher mean scores on Scales K and 6. In addition, Low women had a lower mean T score than High and Low men on Scale 1; a higher mean score than High men on Scale 8; and a higher mean score than Middle men on Scale 10.

The MMPI scales on which all three groups of High, Middle, and Low ability women Nongraduates consistently received lower mean T scores than High, Middle, and Low men were 2, 3, and 5. High and Middle women consistently received lower mean T scores than High, Middle, and Low men on Scale 9; and higher mean scores on Scale 10.

High men Nongraduates had higher mean MMPI T scores than High, Middle, and Low ability women on Scales 1, 2, 3, and 5; and a higher mean score than High women on Scale 4. High men also had a higher mean score than High and Middle women Nongraduates on Scale 9, and a lower mean score on Scale 10. In addition, High men had lower mean scores than Low women on Scales L and 8.

Middle men Nongraduates had higher mean MMPI T scores than High, Middle, and Low ability women on Scales F, 2, 3, 4, 5, 8, and 9; and lower mean scores on Scales 6 and 10. Middle men also had a lower mean T score than Middle and Low women Nongraduates on Scale L; and a lower mean score than High and Low women on Scale K.

Low men Nongraduates had higher mean MMPI T scores than High, Middle, and Low ability women on Scales F, 1, 2, 3, 4, 5, 8, and 9; and lower mean T scores on Scales K and 6. Low men also had a lower mean score than Low women on Scale L; and a lower mean score than High and Middle women on Scale 10.

The MMPI scales on which all three groups of High, Middle, and Low ability men Nongraduates consistently received higher mean T scores than all three groups of High, Middle, and Low ability women Nongraduates were 2, 3, and 5. The scales on which Middle and Low men Nongraduates consistently received higher scores than all three groups of High, Middle, and Low women were F, 4, 8, and 9; and lower mean T scores on Scale 6. Scale L was the scale on which High and Low men Nongraduates consistently received a higher mean score than High, Middle, and Low women.

All of these differences for the women Nongraduates and the men Nongraduates are summarized in Tables 36 and 37.

Table 36

Summary of Differences in MMPI Mean T Scores
for Women Nongraduates as Compared to Men Nongraduates
of Varying Ability

Nongraduates	Women													
	Higher Mean T Scores					Lower Mean T Scores								
HIGH WOMEN vs High men					10		1	2	3	4	5	7		9
Middle men	L	K	6		10	F		2	3	4	5		8	9
Low men		K	6		10	F	1	2	3	4	5		8	9
MIDDLE WOMEN vs High men					10		1	2	3		5	7		9
Middle men	L		6		10	F		2	3	4	5		8	9
Low men		K	6		10	F	1	2	3	4	5	7	8	9
LOW WOMEN vs High men	L			8			1	2	3		5	7		
Middle men	L	K	6		10	F		2	3	4	5	7	8	9
Low men	L	K	6			F	1	2	3	4	5	7	8	9

Table 37

Summary of Differences in MMPI T Score
for Men Nongraduates as Compared to Women Nongraduates
of Varying Ability

Nongraduates	Men												
	Higher Mean T Score								Lower Mean T Score				
HIGH MEN vs High women		1	2	3	4	5		9					10
Middle women		1	2	3		5		9				8	10
Low women		1	2	3		5			L				
MIDDLE MEN vs High women	F		2	3	4	5	8	9		K	6		10
Middle women	F		2	3	4	5	8	9	L		6		10
Low women	F		2	3	4	5	8	9	L	K	6		10
LOW MEN vs High women	F	1	2	3	4	5	8	9		K	6		10
Middle women	F	1	2	3	4	5	8	9		K	6		10
Low women	F	1	2	3	4	5	8	9	L	K	6		

B. MMPI SINGLE SCALE ANALYSES

1. Women and Men - Graduates

The frequency and percentage of Graduate women and men of High, Middle, and Low ability which scored within the established T score categories on each of the 13 MMPI scales are presented in Table 38 (Appendix D). Also shown are the results of the chi-square analyses. Twelve of the 13 MMPI scales yielded significant chi-square values at or beyond the .05 level. (At the .05 level, with 13 such distributions, fewer than one significant chi-square would be expected by chance). The distributions of scores of Graduate women and men of High, Middle, and Low ability were significantly different on Scales L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

Tests of differences in proportions for each of the 12 significant scales--L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10--provided more specific information about the differences in the distribution of scores for women and men Graduates of varying ability. The results of the z test of differences between proportions are shown in Table 39 (Appendix D). These results revealed that the proportion of women and men Graduates of varying ability differed significantly at or beyond the .05 level on 197 (out of a possible 315) differences between proportions. The size of all these significant differences in percentages (proportions) ranged 1.8 to 51.9 percent. These differences are described below for each of the 12 scales and their respective T score categories and then summarized in Table 40 after the scale descriptions of significant differences.

Scale L. Tests of differences between proportions scoring within the T score categories for Scale L revealed 18 statistically significant differences (out of a possible 18). The size of these differences ranged 8.5 to 15.9 percent. These 18 significant differences in the proportions of women and men Graduates of varying ability scoring within the specified T score categories on Scale L are listed below.

Scale L (50-69)

More	women	High	Grad	(49.1%)	than	men	High	Grad	(33.3%)
					"	men	Middle	"	(34.7%)
					"	men	Low	"	(39.6%)
More	women	Middle	Grad	(48.1%)	than	men	High	Grad	(33.3%)
					"	men	Middle	"	(34.7%)
					"	men	Low	"	(39.6%)
More	women	Low	Grad	(49.2%)	than	men	High	Grad	(33.3%)
					"	men	Middle	"	(34.7%)
					"	men	Low	"	(39.6%)

Scale L (<49)

More	men	High	Grad	(66.7%)	than	women	High	Grad	(50.9%)
					"	women	Middle	"	(51.9%)
					"	women	Low	"	(50.8%)
More	men	Middle	Grad	(65.3%)	than	women	High	Grad	(50.9%)
					"	women	Middle	"	(51.9%)
					"	women	Low	"	(50.8%)
More	men	Low	Grad	(60.4%)	than	women	High	Grad	(50.9%)
					"	women	Middle	"	(51.9%)
					"	women	Low	"	(50.8%)

Scale K. Tests of differences between proportions scoring within the T score categories for Scale K revealed 12 statistically significant differences (out of a possible 27). The size of these differences ranged 5.4 to 9.8 percent. These 12 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale K are listed below. No significant differences occurred on Scale K between Low women versus High and Low men Graduates. In addition, no significant differences occurred within the T score range of 70 and above.

Scale K (50-69)

More	women	High	Grad	(79.2%)	than	men	High	Grad	(71.8%)
					"	men	Middle	"	(70.5%)
					"	men	Low	"	(69.4%)
More	women	Middle	Grad	(75.9%)	than	men	Middle	Grad	(70.5%)
					"	men	Low	"	(69.4%)

Scale K (<49)

More	men	High	Grad	(25.5%)	than	women	High	Grad	(16.9%)
					"	women	Middle	"	(19.9%)
More	men	Middle	Grad	(26.8%)	than	women	High	Grad	(16.9%)
					"	women	Middle	"	(19.9%)
					"	women	Low	"	(21.4%)
More	men	Low	Grad	(25.3%)	than	women	High	Grad	(16.9%)
					"	women	Middle	"	(19.9%)

Scale 1. Tests of differences between proportions scoring within the T score categories for Scale 1 revealed 14 statistically significant differences (out of a possible 27). The size of these differences ranged 5.7 to 28.2 percent. These 14 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale 1 are listed below.

Scale 1 (70+)

More	men	Middle	Grad	(7.6%)	than	women	High	Grad	(1.0%)
					"	women	Low	"	(1.9%)
More	men	Low	Grad	(24.7%)	than	women	High	Grad	(1.0%)
					"	women	Low	"	(1.9%)

Scale 1 (50-69)

More	men	High	Grad	(52.9%)	than	women	High	Grad	(40.8%)
					"	women	Middle	"	(42.4%)

Scale 1 (<49)

More	women	High	Grad	(58.2%)	than	men	High	Grad	(44.9%)
					"	men	Middle	"	(47.0%)
					"	men	Low	"	(30.0%)
More	women	Middle	Grad	(57.1%)	than	men	High	Grad	(44.9%)
					"	men	Middle	"	(47.0%)
					"	men	Low	"	(30.0%)
More	women	Low	Grad	(52.1%)	than	men	High	Grad	(44.9%)
					"	men	Low	"	(30.0%)

Scale 2. Tests of differences between proportions scoring within the T score categories for Scale 2 revealed 24 statistically significant differences (out of a possible 27). The size of these differences ranged 2.6 to 20.6 percent. These 24 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale 2 are listed below.

Scale 2 (70+)

More	men	High	Grad	(5.1%)	than	women	High	Grad	(1.8%)
					"	women	Low	"	(1.9%)
More	men	Middle	Grad	(5.0%)	than	women	High	Grad	(1.8%)
					"	women	Low	"	(1.9%)
More	men	Low	Grad	(7.6%)	than	women	High	Grad	(1.8%)
					"	women	Low	"	(1.9%)

Scale 2 (50-69)

More	men	High	Grad	(48.8%)	than	women	High	Grad	(31.5%)
					"	women	Middle	"	(33.4%)
					"	women	Low	"	(37.0%)
More	men	Middle	Grad	(43.4%)	than	women	High	Grad	(31.5%)
					"	women	Middle	"	(33.4%)
					"	women	Low	"	(37.0%)
More	men	Low	Grad	(45.8%)	than	women	High	Grad	(31.5%)
					"	women	Middle	"	(33.4%)
					"	women	Low	"	(37.0%)

Scale 2 (<49)

More	women	High	Grad	(66.7%)	than	men	High	Grad	(46.1%)
					"	men	Middle	"	(51.6%)
					"	men	Low	"	(46.6%)
More	women	Middle	Grad	(65.9%)	than	men	High	Grad	(46.1%)
					"	men	Middle	"	(51.6%)
					"	men	Low	"	(46.6%)
More	women	Low	Grad	(61.1%)	than	men	High	Grad	(46.1%)
					"	men	Middle	"	(51.6%)
					"	men	Low	"	(46.6%)

Scale 3. Tests of differences between proportions scoring within the T score categories for Scale 3 revealed 11 statistically significant differences (out of a possible 27). The size of these differences ranged 4.9 to 9.1 percent. These 11 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale 3 are listed below. No significant differences occurred on Scale 3 between Low women versus High, Middle, and Low men Graduates. In addition, no significant differences occurred within the T score range of 70 and above.

Scale 3 (50-69)

More	men	High	Grad	(77.7%)	than	women	High	Grad	(70.2%)
					"	women	Middle	"	(68.6%)
More	men	Middle	Grad	(74.4%)	than	women	Middle	Grad	(68.6%)
More	men	Low	Grad	(76.4%)	than	women	High	Grad	(70.2%)
					"	women	Middle	"	(68.6%)

Scale 3 (<49)

More	women	High	Grad	(28.3%)	than	men	High	Grad	(21.1%)
					"	men	Middle	"	(23.4%)
					"	men	Low	"	(21.0%)
More	women	Middle	Grad	(30.0%)	than	men	High	Grad	(21.1%)
					"	men	Middle	"	(23.4%)
					"	men	Low	"	(21.0%)

Scale 4. Tests of differences between proportions scoring within the T score categories for Scale 4 revealed 16 statistically significant differences (out of a possible 27). The size of these differences ranged 5.1 to 22.3 percent. These 16 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale 4 are listed below. No significant differences occurred on Scale 4 between High men versus High and Low women Graduates.

Scale 4 (70+)

More	men	Middle	Grad	(10.9%)	than	women	High	Grad	(4.2%)
					"	women	Middle	"	(3.6%)
					"	women	Low	"	(5.3%)
More	men	Low	Grad	(25.9%)	than	women	High	Grad	(4.2%)
					"	women	Middle	"	(3.6%)
					"	women	Low	"	(5.3%)

Scale 4 (50-69)

More	men	Middle	Grad	(70.8%)	than	women	High	Grad	(65.7%)
More	women	High	Grad	(65.7%)	than	men	Low	Grad	(61.9%)
More	women	Middle	Grad	(70.4%)	than	men	Low	Grad	(61.9%)
More	women	Low	Grad	(70.9%)	than	men	Low	Grad	(61.9%)

Scale 4 (<49)

More	women	High	Grad	(30.1%)	than	men	Middle	Grad	(18.3%)
					"	men	Low	"	(12.2%)
More	women	Middle	Grad	(26.0%)	than	men	Middle	Grad	(18.3%)
					"	men	Low	"	(12.2%)
More	women	Low	Grad	(23.8%)	than	men	Middle	Grad	(18.3%)
					"	men	Low	"	(12.2%)

Scale 5. Tests of differences between proportions scoring within the T score categories for Scale 5 revealed 27 statistically significant differences (out of a possible 27). The size of these differences ranged 9.2 to 51.9 percent. These 27 significant differences are listed below.

Scale 5 (70+)

More men	High	Grad	(19.9%)	than	women	High	Grad	(1.0%)
				"	women	Middle	"	(1.3%)
				"	women	Low	"	(2.9%)
More men	Middle	Grad	(12.1%)	than	women	High	Grad	(1.0%)
				"	women	Middle	"	(1.3%)
				"	women	Low	"	(2.9%)
More men	Low	Grad	(12.3%)	than	women	High	Grad	(1.0%)
				"	women	Middle	"	(1.3%)
				"	women	Low	"	(2.9%)

Scale 5 (50-69)

More men	High	Grad	(67.0%)	than	women	High	Grad	(34.0%)
				"	women	Middle	"	(36.8%)
				"	women	Low	"	(35.7%)
More men	Middle	Grad	(67.2%)	than	women	High	Grad	(34.0%)
				"	women	Middle	"	(36.8%)
				"	women	Low	"	(35.7%)
More men	Low	Grad	(63.9%)	than	women	High	Grad	(34.0%)
				"	women	Middle	"	(36.8%)
				"	women	Low	"	(35.7%)

Scale 5 (<49)

More women	High	Grad	(65.0%)	than	men	High	Grad	(13.1%)
				"	men	Middle	"	(20.7%)
				"	men	Low	"	(23.7%)
More women	Middle	Grad	(61.9%)	than	men	High	Grad	(13.1%)
				"	men	Middle	"	(20.7%)
				"	men	Low	"	(23.7%)
More women	Low	Grad	(61.4%)	than	men	High	Grad	(13.1%)
				"	men	Middle	"	(20.7%)
				"	men	Low	"	(23.7%)

Scale 6. Tests of differences between proportions scoring within the T score categories for Scale 6 revealed 13 statistically significant differences (out of a possible 27). The size of these differences ranged 2.1 to 11.2 percent. These 13 significant differences are listed below. No significant differences occurred on Scale 6 between High men versus Middle and Low women Graduates.

Scale 6 (70+)

More	women	High	Grad	(5.0%)	than	men	Middle	Grad	(2.9%)

Scale 6 (50-69)

More	women	High	Grad	(77.7%)	than	men	High	Grad	(72.1%)
					"	men	Middle	"	(68.7%)
					"	men	Low	"	(67.0%)
More	women	Middle	Grad	(74.0%)	than	men	Middle	Grad	(68.7%)
					"	men	Low	"	(67.0%)

Scale 6 (<49)

More	men	High	Grad	(23.3%)	than	women	High	Grad	(17.2%)
More	men	Middle	Grad	(28.4%)	than	women	High	Grad	(17.2%)
					"	women	Middle	"	(22.3%)
					"	women	Low	"	(22.8%)
More	men	Low	Grad	(28.2%)	than	women	High	Grad	(17.2%)
					"	women	Middle	"	(22.3%)
					"	women	Low	"	(22.8%)

Scale 7. Tests of differences between proportions scoring within the T score categories for Scale 7 revealed 21 statistically significant differences (out of a possible 27). The size of these differences ranged 2.4 to 38.0 percent. These 21 differences are listed below.

Scale 7 (70+)

More men	High	Grad	(8.7%)	than women	High	Grad	(3.1%)
				" women	Middle	"	(3.1%)
				" women	Low	"	(4.2%)
More men	Middle	Grad	(15.6%)	than women	High	Grad	(3.1%)
				" women	Middle	"	(3.1%)
				" women	Low	"	(4.2%)
More men	Low	Grad	(41.1%)	than women	High	Grad	(3.1%)
				" women	Middle	"	(3.1%)
				" women	Low	"	(4.2%)

Scale 7 (50-69)

More women	High	Grad	(65.2%)	than men	Low	Grad	(45.4%)
More women	Middle	Grad	(67.7%)	than men	Middle	Grad	(61.6%)
				" men	Low	"	(45.4%)
More women	Low	Grad	(73.0%)	than men	Middle	Grad	(61.6%)
				" men	Low	"	(45.4%)

Scale 7 (<49)

More women	High	Grad	(31.7%)	than men	High	Grad	(24.0%)
				" men	Middle	"	(22.8%)
				" men	Low	"	(13.5%)
More women	Middle	Grad	(29.3%)	than men	High	Grad	(24.0%)
				" men	Middle	"	(22.8%)
				" men	Low	"	(13.5)
More women	Low	Grad	(22.8%)	than men	Low	Grad	(13.5%)

Scale 8. Tests of differences between proportions scoring within the T score categories for Scale 8 revealed 19 statistically significant differences (out of a possible 27). The size of these differences ranged 3.2 to 34.3 percent. These 19 differences are listed below. No significant differences occurred on Scale 8 between Low women versus High men Graduates.

Scale 8 (70+)

More	men	High	Grad	(6.6%)	than	women	High	Grad	(2.8%)
					"	women	Middle	"	(3.4%)
More	men	Middle	Grad	(14.2%)	than	women	High	Grad	(2.8%)
					"	women	Middle	"	(3.4%)
					"	women	Low	"	(5.0%)
More	men	Low	Grad	(37.1%)	than	women	High	Grad	(2.8%)
					"	women	Middle	"	(3.4%)
					"	women	Low	"	(5.0%)

Scale 8 (50-69)

More	women	High	Grad	(73.0%)	than	men	Middle	Grad	(67.6%)
					"	men	Low	"	(49.8%)
More	women	Middle	Grad	(67.1%)	than	men	Low	Grad	(49.8%)
More	women	Low	Grad	(70.1%)	than	men	Low	Grad	(49.8%)

Scale 8 (<49)

More	women	High	Grad	(24.2%)	than	men	Middle	Grad	(18.2%)
					"	men	Low	"	(13.1%)
More	women	Middle	Grad	(29.4%)	than	men	High	Grad	(22.3%)
					"	men	Middle	"	(18.2%)
					"	men	Low	"	(13.1%)
More	women	Low	Grad	(24.9%)	than	men	Middle	Grad	(18.2%)
					"	men	Low	"	(13.1%)

Scale 9. Tests of differences between proportions scoring within the T score categories for Scale 9 revealed 12 statistically significant differences (out of a possible 27). The size of these differences ranged 2.8 to 16.2 percent. These 12 differences are listed below. No significant differences occurred on Scale 9 between High men versus High, Middle, and Low women Graduates.

Scale 9 (70+)

More	men	Middle	Grad	(13.3%)	than	women	High	Grad	(6.5%)
					"	women	Middle	"	(8.8%)
More	men	Low	Grad	(18.1%)	than	women	High	Grad	(6.5%)
					"	women	Middle	"	(8.8%)
					"	women	Low	"	(9.5%)

Scale 9 (50-69)

More	men	Middle	Grad	(65.9%)	than	women	High	Grad	(60.7%)

Scale 9 (<49)

More	women	High	Grad	(32.8%)	than	men	Middle	Grad	(20.7%)
					"	men	Low	"	(16.6%)
More	women	Middle	Grad	(30.0%)	than	men	Middle	Grad	(20.7%)
					"	men	Low	"	(16.6%)
More	women	Low	Grad	(26.5%)	than	men	Middle	Grad	(20.7%)
					"	men	Low	"	(16.6%)

Scale 10. Tests of differences between proportions scoring in the T score categories for Scale 10 revealed 10 statistically significant differences (out of a possible 27). The size of these differences ranged 1.8 to 9.0 percent. These 10 significant differences in the proportions of women and men Graduates of varying ability scoring within the T score categories on Scale 10 are listed below. No significant differences occurred between Middle women versus Low men Graduates; and between Low women versus High and Low men Graduates.

Scale 10 (70+)

More	women	High	Grad	(5.2%)	than	men	Middle	Grad	(3.2%)
					"	men	Low	"	(2.6%)
More	men	High	Grad	(4.1%)	than	women	Middle	Grad	(1.4%)
More	men	Middle	Grad	(3.2%)	than	women	Middle	Grad	(1.4%)

Scale 10 (50-69)

More	women	High	Grad	(39.2%)	than	men	Middle	Grad	(32.2%)
More	women	Middle	Grad	(39.9%)	than	men	Middle	Grad	(32.2%)
More	women	Low	Grad	(40.2%)	than	men	Middle	Grad	(32.2%)

Scale 10 (<49)

More	men	Middle	Grad	(64.6%)	than	women	High	Grad	(55.6%)
					"	women	Middle	"	(58.7%)
					"	women	Low	"	(56.9%)

Table 40

MMPI T Score Categories Within Which the Women and Men Graduates of Varying Ability Had Significantly Higher Proportions

Grad and Ability		MMPI Scales and T Score Categories											
		L			K			1			2		
		70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49
Women	Hi	–	x			x				x			x
	Mid	–	x			x				x			x
	Lo	–	x							x			x
Men	Hi	–		x			x		x		x	x	
	Mid	–		x			x	x			x	x	
	Lo	–		x			x	x			x	x	

NOTE: Interpretation--Example, High ability Graduate women (in contrast to the Graduate men varying ability groups) more frequently had T scores above 70 on Scales 6 and 10; between 50 and 69, inclusive, on Scales L, K, 4, 6, 7, 8, and 10; and at or below 49 on Scales 1, 2, 3, 4, 5, 7, 8, and 9.

Table continued

Table 40 continued

Grad and Ability		MMPI Scales and T Score Categories											
		3			4			5			6		
		70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49
Women	Hi			x		x	x			x	x	x	
	Mid			x		x	x			x		x	
	Lo					x	x			x			
Men	Hi		x					x	x				x
	Mid		x		x	x		x	x				x
	Lo		x		x			x	x				x

Table continued

Table 40 continued

Grad and Ability		MMPI Scales and T Score Categories											
		7			8			9			10		
		70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49
Women	Hi		x	x		x	x			x	x	x	
	Mid		x	x		x	x			x		x	
	Lo		x	x		x	x			x		x	
Men	Hi	x			x						x		
	Mid	x			x			x	x		x		x
	Lo	x			x			x					

These MMPI score differences are reported below in more detail for the High, Middle, and Low ability comparisons between women and men Graduates.

a. High Women Versus High, Middle, and Low Men Graduates

Fewer MMPI differences were found between women and men High ability Graduates than between High women versus Middle and Low men Graduates. High ability women and men Graduates had 19 significantly different proportions on nine MMPI scales (L, K, 1, 2, 3, 5, 6, 7, 8). In contrast, High ability women and Middle men had 30 significantly different proportions on 12 scales (L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10); and High women and Low men had 28 significantly different proportions on 12 MMPI scales (L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10).

No MMPI score differences were found between High women and High men Graduates on Scales 4, 9, and 10, although differences were found on these scales between High women versus Middle and Low men.

MMPI T scores above 70 were earned:

On four scales (2, 5, 7, 8) by High men Graduates in contrast to none by High women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Middle men Graduates in contrast to two scales (6, 10) by High women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low men Graduates in contrast to one scale (10) by High women

MMPI T scores below 49 were earned:

On five scales (1, 2, 3, 5, 7) by High women Graduates in contrast to three scales (L, K, 6) by High men

On eight scales (1, 2, 3, 4, 5, 7, 8, 9) by High women Graduates in contrast to four scales (L, K, 6, 10) by Middle men

On eight scales (1, 2, 3, 4, 5, 7, 8, 9) by High women Graduates in contrast to three scales (L, K, 6) by Low men

MMPI T scores between 50 and 69 were earned:

On three scales (L, K, 6) by High women
Graduates in contrast to four scales (1, 2, 3, 5) by High men

On five scales (L, K, 6, 8, 10) by High women
Graduates in contrast to four scales (2, 4, 5, 9) by Middle men

On six scales (L, K, 4, 6, 7, 8) by High women
Graduates in contrast to three scales (2, 3, 5) by Low men

Thus, comparisons between High women versus High men Graduates showed that High ability women more frequently had scores between 50 and 69, inclusive, on MMPI Scales L, K, and 6; and below 49 on Scales 1, 2, 3, 5, and 7; whereas High men more frequently had scores above 70 on Scales 2, 5, 7, and 8; between 50 and 69 on Scales 1, 2, 3, and 5; and below 49 on Scales L, K, and 6.

In terms of High women versus Middle men Graduates, High women more frequently had scores above 70 on MMPI Scales 6 and 10; between 50 and 69 on Scales L, K, 6, 8, and 10; and below 49 on Scales 1, 2, 3, 4, 5, 7, 8, and 9; whereas Middle men more frequently had scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales 2, 4, 5, and 9; and below 49 on Scales L, K, 6, and 10.

Data for High women versus Low men Graduates revealed that High women more frequently had scores above 70 on Scale 10; between 50 and 69 on Scales L, K, 4, 6, 7, and 8; and below 49 on Scales 1, 2, 3, 4, 5, 7, 8, and 9; whereas Low men had scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales 2, 3, and 5; and below 49 on Scales L, K, and 6.

All of these statistically significant differences are listed on the following page.

Graduates

More High Women vs.	More High Men	More High Women vs.	More Middle Men	More High Women vs.	More Low Men
L (50-69)	L (<49)	L (50-69)	L (<49)	L (50-69)	L (<49)
K (50-69)	K (<49)	K (50-69)	K (<49)	K (50-69)	K (<49)
1 (<49)	1 (50-69)	1 (<49)	1 (70+)	1 (<49)	1 (70+)
2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)
3 (<49)	3 (50-69)	3 (<49)		3 (<49)	3 (50-69)
		4 (<49)	4 (70+) (50-69)	4 (50-69) (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
6 (50-69)	6 (<49)	6 (70+) (50-69)	6 (<49)	6 (50-69)	6 (<49)
7 (<49)	7 (70+)	7 (<49)	7 (70+)	7 (50-69) (<49)	7 (70+)
	8 (70+)	8 (50-69) (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)	9 (70+) (50-69)	9 (<49)	9 (70+)
		10 (70+) (50-69)	10 (<49)	10 (70+)	

b. Middle Women Versus High, Middle, and Low Men Graduates

Fewer statistically significant MMPI differences were found between Middle ability women and High ability men Graduates than between Middle women versus Middle and Low men Graduates. Middle ability women and High ability men had 17 significantly different proportions on nine MMPI scales (L, K, 1, 2, 3, 5, 7, 8, and 10). In contrast, Middle women and men had 26 significantly different proportions on 12 scales (L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10); and Middle women and Low men had 25 significantly different proportions on 11 scales (L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9).

No MMPI score differences were found between Middle women and High men on Scales 4, 6, and 9, although differences on these scales were found between Middle women versus Middle and Low men. No MMPI score differences were found between Middle women and Low men on Scale 10, although differences on this scale were found for Middle women versus High and Middle men.

MMPI T scores above 70 were earned:

On four scales (5, 7, 8, 10) by High men Graduates in contrast to none for Middle women

On six scales (4, 5, 7, 8, 9, 10) by Middle men Graduates in contrast to none for Middle women

On five scales (4, 5, 7, 8, 9) by Low men Graduates in contrast to none for Middle women

MMPI T scores below 49 were earned:

On six scales (1, 2, 3, 5, 7, 9) by Middle women Graduates in contrast to two scales (L, K) by High men

On eight scales (1, 2, 3, 4, 5, 7, 8, 9) by Middle women Graduates in contrast to four scales (L, K, 6, 10) by Middle men

On eight scales (1, 2, 3, 4, 5, 7, 8, 9) by Middle women Graduates in contrast to three scales (L, K, 6) by Low men

MMPI T scores between 50 and 69 were earned:

On one scale (L) by Middle women
Graduates in contrast to four scales (1, 2, 3, 5) by High men

On five scales (L, K, 6, 7, 10) by Middle women
Graduates in contrast to three scales (2, 3, 5) by Middle men

On six scales (L, K, 4, 6, 7, 8) by Middle women
Graduates in contrast to three scales (2, 3, 5) by Low men

Thus, in terms of Middle women versus High men Graduates, Middle ability women had scores between 50 and 69 on Scale L and below 49 on Scales 1, 2, 3, 5, 7, and 8; whereas High men had scores above 70 on Scales 5, 7, 8, and 10; between 50 and 69 on Scales 1, 2, 3, and 5; and below 49 on Scales L and K.

Comparisons between Middle women versus Middle men Graduates revealed that Middle women had scores between 50 and 69 on Scales L, K, 6, 7, and 10; and below 49 on Scales 1, 2, 3, 4, 5, 7, 8, and 9; whereas Middle men had scores above 70 on MMPI Scales 4, 5, 7, 8, 9, and 10; between 50 and 69 on Scales 2, 3, and 5; and below 49 on Scales L, K, 6, and 10.

Data for Middle women versus Low men Graduates showed that Middle women had MMPI scores between 50 and 69 on Scales L, K, 4, 6, 7, and 8; and below 49 on Scales 1, 2, 3, 4, 5, 7, 8, and 9; whereas Low men had scores above 70 on Scales 4, 5, 7, 8, and 9; between 50 and 69 on Scales 2, 3, and 5; and below 49 on Scales L and K.

All of these differences are listed on the next page.

Graduates

More Middle Women vs.	More High Men	More Middle Women vs.	More Middle Men	More Middle Women vs.	More Low Men
L (50-69)	L (<49)	L (50-69)	L (<49)	L (50-69)	L (<49)
	K (<49)	K (50-69)	K (<49)	K (50-69)	K (<49)
1 (<49)	1 (50-69)	1 (<49)		1 (<49)	
2 (<49)	2 (50-69)	2 (<49)	2 (50-69)	2 (<49)	2 (50-69)
3 (<49)	3 (50-69)	3 (<49)	3 (50-69)	3 (<49)	3 (50-69)
		4 (<49)	4 (70+)	4 (50-69) (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
		6 (50-69)	6 (<49)	6 (50-69)	6 (<49)
7 (<49)	7 (70+)	7 (50-69) (<49)	7 (70+)	7 (50-69) (<49)	7 (70+)
8 (<49)	8 (70+)	8 (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)	9 (70+)	9 (<49)	9 (70+)
	10 (70+)	10 (50-69)	10 (70+) (<49)		

c. Low Women Versus High, Middle, and Low Men Graduates

Fewer statistically significant MMPI differences were found between Low ability women and High ability men Graduates than between Low women versus Low and Middle men Graduates. Low ability women and High ability men had ten significantly different proportions on five MMPI scales (L, 1, 2, 5, 7). In contrast, Low women and men had 22 significantly different proportions on nine scales (L, 1, 2, 4, 5, 6, 7, 8, 9); and Low women and Middle men had 20 significantly different proportions on 10 scales (L, K, 1, 2, 4, 5, 7, 8, 9, 10).

No MMPI score differences were found between Low women and High men Graduates on Scales K, 4, 8, 9, and 10 and between Low women and Low men on Scales K and 10, although differences were found on these scales for Low women and Middle men.

MMPI T scores above 70 were earned:

On three scales (2, 5, 7) by High men Graduates in contrast to none for Low women

On six scales (1, 2, 4, 5, 7, 8) by Middle men Graduates in contrast to none for Low women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low men Graduates in contrast to none for Low women

MMPI T scores below 49 were earned:

On three scales (1, 2, 5) by Low women Graduates in contrast to one scale (L) by High men

On six scales (1, 2, 4, 5, 8, 9) by Low women Graduates in contrast to three scales (L, K, 10) by Middle men

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low women Graduates in contrast to two scales (L, 6) by Low men

MMPI T scores between 50 and 69 were earned:

On one scale (L) by Low women Graduates in contrast to two scales (2, 5) by High men

On three scales (L, 7, 10) by Low women Graduates in contrast to two scales (2, 5) by Middle men

On four scales (L, 4, 7, 8) by Low women Graduates in contrast to two scales (2, 5) by Low men

Thus, in terms of Low women versus High men Graduates, Low ability women had MMPI scores between 50 and 69 on Scale L; and below 49 on Scales 1, 2, and 5; whereas High men had scores above 70 on Scales 2, 5, and 7; between 50 and 69 on Scales 2 and 5; and below 49 on Scale L.

Comparisons between Low women versus Middle men Graduates revealed that Low women had MMPI scores between 50 and 69 on Scales L, 7, and 10; and below 49 on Scales 1, 2, 4, 5, 8, and 9; whereas Middle men had scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 10; between 50 and 69 on Scales 2 and 5; and below 49 on Scales L, K, and 10.

Data for Low women versus Low men Graduates showed that Low women had MMPI scores between 50 and 69 on Scales L, 4, 7, and 8; and below 49 on Scales 1, 2, 4, 5, 7, 8, and 9; whereas Low men had scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales 2 and 5; and below 49 on Scales L and 6.

All of these differences are listed on the following page.

Graduates

More Low Women vs.	More High Men	More Low Women vs.	More Middle Men	More Low Women vs.	More Low Men
L (50-69)	L (<49)	L (50-69)	L (<49)	L (50-69)	L (<49)
			K (<49)		
1 (<49)		1 (<49)	1 (70+)	1 (<49)	1 (70+)
2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)
		4 (<49)	4 (70+)	4 (50-69) (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
					6 (<49)
	7 (70+)	7 (50-69)	7 (70+)	7 (50-69) (<49)	7 (70+)
		8 (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)		9 (<49)	9 (70+)
		10 (50-69)	10 (<49)		

d. Summary - Graduates

Results of the MMPI chi-square analyses and tests of differences between proportions indicated that High, Middle, and Low ability women who graduated from college differed statistically in their personality characteristics from High, Middle, and Low ability men who graduated from college.

Fewer significant differences in MMPI scores were found between High ability men versus High, Middle, and Low women Graduates. More significant differences were found between Middle and Low men versus High, Middle, and Low women Graduates.

Figures 21, 22, 23, 24, 25, and 26 show, in a summary fashion, for each female and male ability group the MMPI scales and T score categories for which significantly different proportions were found.

High ability *women* Graduates more frequently had:

below 49 scores on Scales 1, 2, 3, 4, 5, 7, and 9;

below 49 and 50-69 scores on Scale 8;

50-69 scores on Scales L and K; and

above 70 and 50-69 scores on Scales 6 and 10.

Middle ability *women* Graduates more frequently had:

below 49 scores on Scales 1, 2, 3, 5, 8, and 9;

below 49 and 50-69 scores on Scales 4, 7, and 10; and

50-69 scores on Scales L, K, and 6.

Low ability *women* Graduates more frequently had:

below 49 scores on Scales 1, 2, 4, 5, and 9;

below 49 and 50-69 scores on Scales 7 and 8; and

50-69 scores on Scales L and 10.

High ability men Graduates more frequently had:

below 49 scores on Scales L, K, and 6;

50-69 scores on Scale 1;

above 70 and 50-69 scores on Scales 2, 3, and 5; and

above 70 scores on Scales 7, 8, and 10.

Middle ability men Graduates more frequently had:

below 49 scores on Scales L, K, 6, and 10;

50-69 scores on Scale 3;

above 70 and 50-69 scores on Scales 2, 4, 5, and 9; and

above 70 scores on Scales 1, 7, 8, and 10.

Low ability men Graduates more frequently had:

below 49 scores on Scales L, K, and 6;

above 70 and 50-69 scores on Scales 2, 3, and 5; and

above 70 scores on Scales 1, 4, 7, 8, and 9.

In the results concerning significantly different proportions, High ability women Graduates more frequently had T scores above 70 on two scales--6 and 10, whereas Middle and Low ability women had none. In contrast, T scores above 70 were earned by High ability men on five scales--2, 5, 7, 8, and 10; by Middle ability men on eight scales--1, 2, 4, 5, 7, 8, 9, and 10; and by Low ability men on seven scales--1, 2, 4, 5, 7, 8, and 9.

Scores below 49 were each earned significantly more frequently by High, Middle, and Low ability men Graduates on three scales--L, K, and 6. In contrast, scores below 49 were earned by High women on eight scales--1, 2, 3, 4, 5, 7, 8, and 9; by Middle women on eight scales--1, 2, 3, 4, 5, 7, 8, and 9; and by Low women on seven scales--1, 2, 4, 5, 7, 8, and 9.

High, Middle and Low ability men Graduates had fewer scales where they earned significantly more frequently T scores between 50 and 69 than did varying ability women Graduates. T scores between 50 and 69 were

T Score Categories	High Women Graduates -- MMPI Scales											
70+ (High)								6				10
50-69 (Average)	L	K						6		8		10
<49 (Low)			1	2	3	4	5		7	8	9	

Figure 21: MMPI Scales and T Score Categories on which High Ability Women Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Graduates

T Score Categories	Middle Women Graduates -- MMPI Scales											
70+ (High)												
50-69 (Average)	L	K				4		6	7			10
∠49 (Low)			1	2	3	4	5		7	8	9	

Figure 22: MMPI Scales and T Score Categories on which Middle Ability Women Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Graduates

T Score Categories	Low Women Graduates -- MMPI Scales								
70+ (High)									
50-69 (Average)	L					7	8		10
<49 (Low)		1	2	4	5	7	8	9	

Figure 23: MMPI Scales and T Score Categories on which Low Ability Women Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Graduates

T Score Categories	High Men Graduates -- MMPI Scales									
70+ (High)				2		5		7	8	10
50-69 (Average)			1	2	3	5				
<49 (Low)	L	K					6			

Figure 24: MMPI Scales and T Score Categories on which High Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates

T Score Categories	Middle Men Graduates -- MMPI Scales											
70+ (High)			1	2		4	5		7	8	9	10
50-69 (Average)				2	3	4	5				9	
<49 (Low)	L	K						6				10

Figure 25: MMPI Scales and T Score Categories on which Middle Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates

T Score Categories	Low Men Graduates -- MMPI Scales										
70+ (High)			1	2	3	4	5		7	8	9
50-69 (Average)				2	3		5				
<49 (Low)	L	K						6			

Figure 26: MMPI Scales and T Score Categories on which Low Ability Men Graduates Scored Significantly More Frequently than High, Middle, and Low Ability Women Graduates

earned significantly more frequently by High men on four scales--1, 2, 3, and 5; by Middle men on five scales--2, 3, 4, 5, and 9; and by Low men on three scales--2, 3, and 5. In contrast, T scores between 50 and 69 were earned more frequently by High women Graduates on five scales--L, K, 6, 8, and 10; by Middle women on six scales--L, K, 4, 6, 7, and 10; and by Low women on four scales--L, 7, 8, and 10.

Figures 27 and 28 summarize the combined ability findings for significantly different proportions in MMPI scores between women Graduates and men Graduates.

Men Graduates of varying ability significantly more frequently had T scores above 70 on Scales 1, 2, 4, 5, 7, 8, 9, and 10. Women Graduates significantly more frequently had T scores above 70 on two scales--6 and 10--and these were for High women compared to Middle men.

T scores below 49 were earned significantly more frequently by women Graduates of varying ability on Scales 1, 2, 3, 4, 5, 7, 8, and 9. Men Graduates significantly more frequently had T scores below 49 on fewer scales--L, K, 6, and 10.

T scores between 50 and 69 were earned significantly more frequently by women Graduates of varying ability on Scales L, K, 4, 6, 7, 8, and 10; and significantly more frequently by men Graduates on fewer scales--1, 2, 3, 4, and 5.

Thus, women Graduates of varying ability had:

below 49 MMPI scores on Scales 1, 2, 5, and 9;

below 49 and 50-69 scores on Scales 4, 7, and 8;

50-69 scores on Scales L and K;

above 70 and 50-69 scores on Scales 6 and 10.

Men Graduates of varying ability had

below 49 MMPI scores on Scales L, K, 6, and 10;

50-69 scores on Scale 3;

above 70 and 50-69 scores on Scales 1, 2, 4, and 5; and

above 70 scores on Scales 7, 8, 9, and 10.

T Score Categories	Women Graduates -- MMPI Scales											
70+ (High)								6				10
50-69 (Average)	L	K				4		6	7	8		10
<49 (Low)			1	2	3	4	5		7	8	9	

Figure 27: MMPI Scales and T Score Categories on which Varying Ability Women Graduates Scored Significantly More Frequently than Varying Ability Men Graduates

T Score Categories	Men Graduates -- MMPI Scales											
70+ (High)			1	2		4	5		7	8	9	10
50-69 (Average)			1	2	3	4	5				9	
<49 (Low)	L	K						6				10

Figure 28: MMPI Scales and T Score Categories on which Varying Ability Men Graduates Scored Significantly More Frequently than Varying Ability Women Graduates

2. Women and Men - Nongraduates

The frequency and percentage of the Nongraduate women and men of High, Middle, and Low ability which scored within the established T score categories on each of the 13 MMPI scales are presented in Table 41 (Appendix D). Also shown are the results of the chi-square analyses. All 13 of the MMPI scales yielded significant chi-square values at or beyond the .05 level. (At the .05 level, with 13 such distributions, fewer than one significant chi-square would be expected by chance). The distributions of scores of Nongraduate women and men of High, Middle, and Low ability were significantly different on scales L, F, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

Tests of differences in proportions for each of the 13 significant scales provided more specific information about the differences in the distributions of MMPI scores for women and men Nongraduates of varying ability. The results of the z test of differences between proportions are shown in Table 42 (Appendix D). These results revealed that the proportion of women and men Nongraduates of varying ability differed significantly at the .05 level or beyond on 164 (out of a possible 342) differences between proportions. The size of all of these significant differences in percentages (proportions) ranged 2.1 to 43.3 percent. These differences are described below for each of the 13 scales and their respective T score categories; and then summarized in Table 43 after the scale descriptions.

Scale L. Tests of differences in proportions for Scale L revealed that the women and men Nongraduates of varying ability differed significantly on four (out of a possible 18) differences between proportions of the MMPI T score categories. The size of these statistically significant differences ranged 5.7 to 9.2 percent. These differences are listed below. No significant differences occurred on Scale L between High men versus High, Middle, and Low women Nongraduates; between Middle men versus High and Middle women; and between Low men versus High and Low women.

Scale L (50-69)

More *women* Low Nongrad (46.4%) than *men* Middle Nongrad (37.2%)
" *men* Low " (38.3%)

Scale L (<49)

More *men* Middle Nongrad (62.8%) than *women* Low Nongrad (53.6%)

More *men* Low Nongrad (61.7%) than *women* Low Nongrad (53.6%)

Scale F. Tests of differences between proportions scoring within the T score categories for Scale F revealed 12 statistically significant differences (out of a possible 27). The size of these differences ranged 9.4 to 16.8 percent. These 12 significant differences in the proportion of women and men Nongraduates of varying ability scoring within the T score categories on Scale F are listed below. No significant differences occurred on Scale F between High men versus High, Middle, and Low women Nongraduates. In addition, no significant differences occurred in the MMPI T score range of 70 and above.

Scale F (50-69)

More	men	Middle	Nongrad	(60.6%)	than	women	High	Nongrad	(47.2%)
					"	women	Middle	"	(49.2%)
					"	women	Low	"	(50.7%)
More	men	Low	Nongrad	(62.3%)	than	women	High	Nongrad	(47.2%)
					"	women	Middle	"	(49.2%)
					"	women	Low	"	(50.7%)

Scale F (<49)

More	women	High	Nongrad	(51.8%)	than	men	Middle	Nongrad	(37.9%)
					"	men	Low	"	(35.1%)
More	women	Middle	Nongrad	(50.5%)	than	men	Middle	Nongrad	(37.9%)
					"	men	Low	"	(35.1%)
More	women	Low	Nongrad	(47.3%)	than	men	Middle	Nongrad	(37.9%)
					"	men	Low	"	(35.1%)

Scale K. Tests of differences between proportions of women and men Nongraduates scoring within the T score categories for Scale K revealed five statistically significant differences (out of a possible 27). The size of these differences ranged 5.4 to 8.4 percent. These differences are listed below. No significant differences occurred on Scale K between High men versus High, Middle, and Low women Nongraduates; and between Middle men versus High, Middle, and Low women. In addition, no significant differences occurred in the T score range of 70 and above.

Scale K (50-69)

More women High Nongrad (74.1%) than men Low Nongrad (66.1%)

More women Middle Nongrad (73.4%) than men Low Nongrad (66.1%)

Scale K (<49)

More men Low Nongrad (30.9%) than women High Nongrad (22.5%)
" women Middle Nongrad (24,3%)
" women Low Nongrad (25.5%)

Scale 1. Tests of differences between proportions of Nongraduates scoring within the T score categories for Scale 1 revealed 12 statistically significant differences (out of a possible 27). The size of these differences ranged 7.2 to 22.5 percent. These differences are listed below. No significant differences occurred on Scale 1 between High men versus High, Middle, and Low women Nongraduates. In addition, no significant differences occurred in the MMPI T score range of 50 to 69, inclusive.

Scale 1 (70+)

More *men*	Middle	Nongrad	(8.8%)	than	*women*	High	Nongrad	(1.6%)
				"	*women*	Middle	"	(0.8%)
				"	*women*	Low	"	(0.8%)
More *men*	Low	Nongrad	(21.0%)	than	*women*	High	Nongrad	(1.6%)
				"	*women*	Middle	"	(0.8%)
				"	*women*	Low	"	(0.8%)

Scale 1 (≤49)

More *women*	High	Nongrad	(53.6%)	than	*men*	Middle	Nongrad	(44.6%)
				"	*men*	Low	"	(34.6%)
More *women*	Middle	Nongrad	(57.1%)	than	*men*	Middle	Nongrad	(44.6%)
				"	men	Low	"	(36.6%)
More *women*	Low	Nongrad	(53.7%)	than	*men*	Middle	Nongrad	(44.6%)
				"	*men*	Low	"	(34.6%)

Scale 2. Tests of differences between proportions of Nongraduate women and men scoring within the T score categories for Scale 2 revealed 19 statistically significant differences (out of a possible 27). The size of these differences ranged 2.1 to 23.3 percent. These differences are listed below. No significant differences occurred on Scale 2 between High men versus High and Low women Nongraduates.

Scale 2 (70+)

More men	Middle	Nongrad	(3.4%)	than	women	Middle	Nongrad	(0.9%)
				"	women	Low	"	(1.3%)
More men	Low	Nongrad	(5.6%)	than	women	High	Nongrad	(1.6%)
				"	women	Middle	"	(0.9%)
				"	women	Low	"	(1.3%)

Scale 2 (50-69)

More men	High	Nongrad	(44.9%)	than	women	Middle	Nongrad	(35.3%)
More men	Middle	Nongrad	(46.6%)	than	women	High	Nongrad	(35.8%)
				"	women	Middle	"	(35.5%)
				"	women	Low	"	(35.8%)
More men	Low	Nongrad	(48.3%)	than	women	High	Nongrad	(35.8%)
				"	women	Middle	Nongrad	(35.3%)
				"	women	Low	Nongrad	(35.8%)

Scale 2 (<49)

More women	High	Nongrad	(62.7%)	than	men	Middle	Nongrad	(50.0%)
				"	men	Low	"	(46.1%)
More women	Middle	Nongrad	(63.8%)	than	men	High	Nongrad	(53.4%)
				"	men	Middle	"	(50.0%)
				"	men	Low	"	(46.1%)
More women	Low	Nongrad	(62.9%)	than	men	Middle	Nongrad	(50.0%)
				"	men	Low	"	(46.1%)

Scale 3. Tests of differences between proportions of Nongraduate women and men scoring within the T score categories for Scale revealed five statistically significant differences (out of a possible 27). The size of these differences ranged 2.3 to 7.5 percent. No significant differences occurred on Scale 3 between High men versus High, Middle, and Low women Nongraduates; between Middle men versus High and Low women; and between Low men versus Low women.

Scale 3 (70+)

More women High Nongrad (4.4%) than men Low Nongrad (2.1%)

Scale 3 (50-69)

More men Middle Nongrad (73.8%) than women Middle Nongrad (66.3%)
More men Low Nongrad (73.0%) than women Middle Nongrad (66.3%)

Scale 3 (<49)

More women Middle Nongrad (31.0%) than men Middle Nongrad (23.8%)
" men Low " (25.0%)

Scale 4. Tests of differences between proportions of Nongraduates scoring within the T score categories for Scale 4 revealed ten statistically significant differences (out of a possible 27). The size of these differences ranged 4.4 to 18.0 percent. These significant differences are listed below. No significant differences occurred on Scale 4 between High men versus High, Middle, and Low women Nongraduates; and between Middle men versus High women.

Scale 4 (70+)

More men Middle Nongrad (10.8%) than women Middle Nongrad (6.4%)

More men Low Nongrad (24.4%) than women High Nongrad (7.5%)
" women Middle " (6.4%)
" women Low " (9.0%)

Scale 4 (50-69)

More women High Nongrad (68.4%) than men Low Nongrad (59.8%)

More women Low Nongrad (71.0%) than men Low Nongrad (59.8%)

Scale 4 (<49)

More women High Nongrad (24.1%) than men Low Nongrad (15.8%)

More women Middle Nongrad (28.9%) than men Middle Nongrad (20.2%)
" men Low " (15.8%)

More women Low Nongrad (20.1%) than men Low Nongrad (15.8%)

Scale 5. Tests of differences between proportions of Nongraduate women and men scoring within the T score categories for Scale 5 revealed 27 statistically significant differences (out of a possible 27). The size of these differences ranged 4.5 to 43.3 percent. These differences are listed below.

Scale 5 (70+)

More men	High	Nongrad	(18.6%)	than	women	High	Nongrad	(1.3%)
				"	women	Middle	"	(1.4%)
				"	women	Low	"	(1.3%)
More men	Middle	Nongrad	(8.7%)	than	women	High	Nongrad	(1.4%)
				"	women	Middle	"	(1.3%)
				"	women	Low	"	(1.4%)
More men	Low	Nongrad	(5.8%)	than	women	High	Nongrad	(1.3%)
				"	women	Middle	"	(1.4%)
				"	women	Low	"	(1.3%)

Scale 5 (50-69)

More men	High	Nongrad	(60.2%)	than	women	High	Nongrad	(34.2%)
				"	women	Middle	"	(40.4%)
				"	women	Low	"	(43.4%)
More men	Middle	Nongrad	(68.8%)	than	women	High	Nongrad	(34.2%)
				"	women	Middle	"	(40.4%)
				"	women	Low	"	(43.4%)
More men	Low	Nongrad	(63.2%)	than	women	High	Nongrad	(34.2%)
				"	women	Middle	"	(40.4%)
				"	women	Low	"	(43.4%)

Scale 5 (≤49)

More women	High	Nongrad	(64.5%)	than	men	High	Nongrad	(21.2%)
				"	men	Middle	"	(22.6%)
				"	men	Low	"	(31.0%)
More women	Middle	Nongrad	(58.2%)	than	men	High	Nongrad	(21.2%)
				"	men	Middle	"	(22.6%)
				"	men	Low	"	(31.0%)
More women	Low	Nongrad	(55.2%)	than	men	High	Nongrad	(21.2%)
				"	men	Middle	"	(22.6%)
				"	men	Low	"	(31.0%)

Scale 6. Tests of differences between proportions of Nongraduates scoring within the T score categories for Scale 6 revealed 14 statistically significant differences (out of a possible 27). The size of these differences ranged 2.5 to 11.7 percent. These differences are listed below. No significant differences occurred on Scale 6 between High men versus High, Middle, and Low women Nongraduates; and between Middle men versus Middle women.

Scale 6 (70+)

More	women	High	Nongrad	(5.4%)	than	men	Middle	Nongrad	(2.9%)
					"	men	Low	"	(2.3%)
More	women	Middle	Nongrad	(5.0%)	than	men	Low	Nongrad	(2.3%)
More	women	Low	Nongrad	(5.3%)	than	men	Middle	Nongrad	(2.9%)
					"	men	Low	"	(2.3%)

Scale 6 (50-69)

More	women	High	Nongrad	(76.4%)	than	men	Middle	Nongrad	(70.4%)
					"	men	Low	"	(67.9%)
More	women	Middle	Nongrad	(72.9%)	than	men	Low	Nongrad	(67.9%)
More	women	Low	Nongrad	(73.0%)	than	men	Low	Nongrad	(67.9%)

Scale 6 (<49)

More	men	Middle	Nongrad	(26.7%)	than	women	High	Nongrad	(18.1%)
					"	women	Low	"	(21.7%)
More	men	Low	Nongrad	(29.8%)	than	women	High	Nongrad	(18.1%)
					"	women	Middle	"	(22.0%)
					"	women	Low	"	(21.7%)

Scale 7. Tests of differences between proportions of Nongraduates scoring within the T score categories for Scale 7 revealed 17 statistically significant differences (out of a possible 27). The size of these differences ranged 5.4 to 34.5 percent. No significant differences occurred on Scale 7 between High men versus High, Middle, and Low women Nongraduates.

Scale 7 (70+)

More	men	Middle	Nongrad	(16.2%)	than	women	High	Nongrad	(2.3%)
					"	women	Middle	"	(2.7%)
					"	women	Low	"	(3.6%)
More	men	Low	Nongrad	(36.8%)	than	women	High	Nongrad	(2.3%)
					"	women	Middle	"	(2.7%)
					"	women	Low	"	(3.6%)

Scale 7 (50-69)

More	women	High	Nongrad	(70.7%)	than	men	Middle	Nongrad	(62.3%)
					"	men	Low	"	(48.1%)
More	women	Middle	Nongrad	(70.4%)	than	men	Middle	Nongrad	(62.3%)
					"	men	Low	"	(48.1%)
More	women	Low	Nongrad	(72.0%)	than	men	Middle	Nongrad	(62.3%)
					"	men	Low	"	(48.1%)

Scale 7 (<49)

More	women	High	Nongrad	(26.9%)	than	men	Low	Nongrad	(15.1%)
More	women	Middle	Nongrad	(26.9%)	than	men	Middle	Nongrad	(21.5%)
					"	men	Low	"	(15.1%)
More	women	Low	Nongrad	(24.4%)	than	men	Middle	Nongrad	(21.5%)
					"	men	Low	"	(15.1%)

Scale 8. Tests of differences between proportions of Nongraduates scoring with the T score categories for Scale 8 revealed 15 statistically significant differences (out of a possible 27). The size of these differences, listed below ranged 7.8 to 39.6 percent. No significant differences on Scale 8 occurred between High men versus High, Middle, and Low women Nongraduates.

Scale 8 (70+)

More	men	Middle	Nongrad	(16.2%)	than	women	High	Nongrad	(4.7%)
					"	women	Middle	"	(3.3%)
					"	women	Low	"	(5.0%)
More	men	Low	Nongrad	(35.0%)	than	women	High	Nongrad	(4.7%)
					"	women	Middle	"	(3.3%)
					"	women	Low	"	(5.0%)

Scale 8 (50-69)

More	women	High	Nongrad	(67.1%)	than	men	Low	Nongrad	(50.3%)
More	women	Middle	Nongrad	(71.0%)	than	men	Low	Nongrad	(50.3%)
More	women	Low	Nongrad	(70.6%)	than	men	Low	Nongrad	(50.3%)

Scale 8 (<49)

More	women	High	Nongrad	(28.2%)	than	men	Middle	Nongrad	(17.9%)
					"	men	Low	"	(14.7%)
More	women	Middle	Nongrad	(25.7%)	than	men	Middle	Nongrad	(17.9%)
					"	men	Low	"	(14.7%)
More	women	Low	Nongrad	(24.4%)	than	men	Middle	Nongrad	(17.9%)
					"	men	Low	"	(14.7%)

Scale 9. Tests of differences between proportions of Nongraduates scoring within the T score categories for Scale 9 revealed 12 statistically significant differences (out of a possible 27). The size of these differences, listed below, ranged 4.6 to 13.3 percent. In addition, no significant differences occurred in the MMPI T score range 50 to 69, inclusive.

Scale 9 (70+)

More	men	Middle	Nongrad	(15.7%)	than	women	High	Nongrad	(9.8%)
					"	women	Middle	"	(8.5%)
					"	women	Low	"	(11.1%)
More	men	Low	Nongrad	(21.8%)	than	women	High	Nongrad	(9.8%)
					"	women	Middle	"	(8.5%)
					"	women	Low	"	(11.1%)

Scale 9 (<49)

More	women	High	Nongrad	(26.7%)	than	men	Middle	Nongrad	(19.3%)
					"	men	Low	"	(15.4%)
More	women	Middle	Nongrad	(26.3%)	than	men	Middle	Nongrad	(19.3%)
					"	men	Low	"	(15.4%)
More	women	Low	Nongrad	(26.7%)	than	men	Middle	Nongrad	(19.3%)
					"	men	Low	"	(15.4%)

Scale 10. Tests of differences between proportions of Nongraduate women and men scoring within the T score categories for Scale 10 revealed 11 statistically significant differences (out of a possible 27). The size of these differences, presented below, ranged 2.3 to 11.1 percent. No significant differences occurred between High men versus Middle and Low women Nongraduates; and between Low men versus Low women.

Scale 10 (70+)

More	women	High	Nongrad	(4.7%)	than	men	Middle	Nongrad	(2.3%)

Scale 10 (50-69)

More	women	High	Nongrad	(40.4%)	than	men	Middle	Nongrad	(31.6%)
					"	men	Low	"	(34.4%)
More	women	Middle	Nongrad	(40.6%)	than	men	Middle	Nongrad	(31.6%)
					"	men	Low	"	(34.4%)
More	women	Low	Nongrad	(38.5%)	than	men	Middle	Nongrad	(31.6%)

Scale 10 (<49)

More	men	High	Nongrad	(65.3%)	than	women	High	Nongrad	(54.9%)
More	men	Middle	Nongrad	(66.1%)	than	women	High	Nongrad	(54.9%)
					"	women	Middle	"	(56.8%)
More	men	Low	Nongrad	(62.4%)	than	women	High	Nongrad	(54.9%)
					"	women	Middle	"	(56.8%)

Table 43

MMPI T Score Categories Within Which the Women and Men Nongraduates of Varying Ability Had Significantly Higher Proportions

Nongrad and Ability		MMPI Scales and T Score Categories											
		L			F			K			1		
		70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49
Women	Hi	-					x		x				x
	Mid	-					x		x				x
	Lo	-	x				x						x
Men	Hi	-											
	Mid	-		x		x					x		
	Lo	-		x		x				x	x		

NOTE: Interpretation--Example, High ability Nongraduate women (in contrast to the Nongraduate men varying ability groups) more frequently had T scores above 70 on Scales 3, 6, and 10; between 50 and 69, inclusive, on Scales K, 4, 6, 7, 8, and 10; and below 49 on Scales F, 1, 2, 4, 5, 7, 8, and 9.

Table continued

Table 43 continued

Nongrad and Ability		MMPI Scales and T Score Categories											
		2			3			4			5		
		70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49	70+	50-69	≤49
Women	Hi			x	x				x	x	x	x	
	Mid			x			x			x	x	x	
	Lo			x					x	x	x	x	
Men	Hi		x										
	Mid	x	x			x		x					x
	Lo	x	x			x		x					x

Table continued

Table 43 continued

Nongrad and Ability		MMPI Scales and T Score Categories											
		6			7			8			9		
		70+	50–69	≤49	70+	50–69	≤49	70+	50–69	≤49	70+	50–69	≤49
Women	Hi	x	x			x	x		x	x			x
	Mid	x	x			x	x		x	x			x
	Lo	x	x			x	x		x	x			x
Men	Hi												
	Mid			x	x			x			x		
	Lo			x	x			x			x		

Table continued

Table 43 continued

Nongrad and Ability		MMPI Scales and T Score Categories 10 70+	 50-69	 ≤49
Women	Hi	x	x	
	Mid		x	
	Lo		x	
Men	Hi			x
	Mid			x
	Lo			x

These MMPI score differences are reported below in more detail for the High, Middle, and Low ability comparisons between women and men Non-Graduates.

a. High Women Versus High, Middle, and Low Men Nongraduates

Fewer MMPI differences were found between women and men High ability Nongraduates than between High women versus Middle and Low men Nongraduates. High ability women and men Nongraduates had four significantly different proportions on two MMPI scales (5 and 10). In contrast, High ability women and Low men had 29 significantly different proportions on 12 scales (F, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10); and High and Middle men had two significantly different proportions on nine scales (F, 1, 2, 5, 6, 7, 8, 9, 10).

No significant differences were found on Scales K, 3, and 4 between High women versus High and Middle men Nongraduates, although differences were found on these scales between High women and Low men. In addition to Scales 3 and 4, no differences were found between High women and men on Scales F, 1, 2, 6, 7, 8, 9, and 10, although differences were found on these scales between High women versus Middle and Low men Nongraduates.

MMPI T scores above 70 were earned:

On one scale (5) by High men
Nongraduates in contrast to none by High women

On five scales (1, 5, 7, 8, 9) by Middle men
Nongraduates in contrast to two scales (6, 10) by High women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low men
Nongraduates in contrast to two scales (3, 6) by High women

MMPI T scores below 49 were earned:

On one scale (5) by High women
Nongraduates in contrast to one scale (10) by High men

On six scales (F, 1, 2, 5, 8, 9) by High women
Nongraduates in contrast to two scales (6, 10) by Middle men

On eight scales (F, 1, 2, 4, 5, 7, 8, 9) by High women
Nongraduates in contrast to three scales (K, 6, 10) by Low men

MMPI T scores between 50 and 69 were earned:

On no scale by High women
Nongraduates in contrast to one scale (5) by High men

On three scales (6, 7, 10) by High women
Nongraduates in contrast to three scales (F, 2, 5) by Middle men

On six scales (K, 4, 6, 7, 8, 10) by High Women
Nongraduates in contrast to three scales (F, 2, 5) by Low men

Thus, in terms of High women versus High men Nongraduates, High ability women more frequently had MMPI T scores below 49 on Scale 5; whereas High men more frequently had T scores above 70 as well as between 50 and 69 on Scale 5; and below 49 on Scale 10.

Comparisons between High women versus Middle men Nongraduates revealed that High women more frequently had T scores above 70 on Scales 6 and 10; between 50 and 69 on Scales 6, 7, and 10; and below 49 on Scales F, 1, 2, 5, 8, and 9; whereas Middle men more frequently had scores above 70 on Scales 1, 5, 7, 8, and 9; between 50 and 69 on Scales F, 2, and 5; and below 49 on Scales 6 and 10.

Data for High women versus Low men Nongraduates showed that High women more frequently had MMPI scores above 70 on Scales 3 and 6; between 50 and 69 on Scales K, 4, 6, 7, 8, and 10; and below 49 on Scales F, 1, 2, 4, 5, 7, 8, and 9; whereas Low men more frequently had scores above 70 on Scales 1, 2, 4, 7, 8, and 9; between 50 and 69 on Scales F, 2, and 5; and below 49 on Scales K and 10.

All of these differences are listed below.

Nongraduates

More High Women vs.	More High Men	More High Women vs.	More Middle Men	More High Women vs.	More Low Men
		F (<49)	F (50-69)	F (<49)	F (50-69)
				K (50-69)	K (<49)
		1 (<49)	1 (70+)	1 (<49)	1 (70+)
		2 (<49)	2 (50-69)	2 (<49)	2 (70+) (50-69)
				3 (70+)	
				4 (50-69) (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
		6 (70+) (50-69)	6 (<49)	6 (70+) (50-69)	6 (<49)
		7 (50-69)	7 (70+)	7 (50-69) (<49)	7 (70+)
		8 (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)	9 (70+)	9 (<49)	9 (70+)
	10 (<49)	10 (70+) (50-69)	10 (<49)	10 (50-69)	10 (<49)

b. Middle Women Versus High, Middle, and Low Men Nongraduates

Fewer MMPI score differences were found between Middle ability women and High men Nongraduates than between Middle women versus Middle and Low men. Middle women and High men had five significantly different proportions on two scales (2, 5). In contrast, Middle women and Low men had 28 significantly different proportions on 12 scales (F, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10); and Middle women and men had 23 significantly different proportions on ten scales (F, 1, 2, 3, 4, 5, 7, 8, 9, 10).

No significant differences were found on Scales K and 6 between High women versus High and Middle men, although differences were found between Middle women and Low men. In addition, no significant differences were found between Middle women and High men on Scales F, 1, 3, 4, 7, 8, and 9, although differences were found on these scales between Middle women versus Middle and Low men Nongraduates.

MMPI T scores above 70 were earned:

On one scale (5) by High men Nongraduates in contrast to none by Middle women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Middle men Nongraduates in contrast to none by Middle women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low men Nongraduates in contrast to one scale (6) by Middle women

MMPI T scores below 49 were earned:

On two scales (2, 5) by Middle women Nongraduates in contrast to none by High men

On nine scales (F, 1, 2, 3, 4, 5, 7, 8, 9) by Middle women Nongraduates in contrast to one scale (10) by Middle men

On nine scales (F, 1, 2, 3, 4, 5, 7, 8, 9) by Middle women Nongraduates in contrast to three scales (K, 6, 10) by Low men

MMPI T scores between 50 and 69 were earned:

On no scale by Middle women
Nongraduates in contrast to two scales (2, 5) by High men

On two scales (7, 10) by Middle women
Nongraduates in contrast to four scales (F, 2, 3, 5) by Middle men

On four scales (K, 6, 7, 8) by Middle women
Nongraduates in contrast to four scales (F, 2, 3, 5) by Low men

Thus, comparison between Middle women versus High men Nongraduates showed that Middle women more frequently had MMPI T scores below 49 on Scales 2 and 5; whereas High men more frequently had scores above 70 on Scale 5; and between 50 and 69 on Scales 2 and 5.

Data for Middle women versus Middle men Nongraduates revealed that Middle women more frequently had MMPI T scores between 50 and 69 on Scales 7 and 10; and below 49 on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9; whereas Middle men more frequently had scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales F, 2, 3, and 5; and below 49 on Scale 10.

Analyses for Middle women versus Low men Nongraduates showed that Middle women more frequently had MMPI T scores above 70 on Scale 6; between 50 and 69 on Scales K, 6, 7, and 8; and below 49 on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9; whereas Low men more frequently had T scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales F, 2, 3, and 5; and below 49 on Scales K, 6, and 10.

All of these differences are listed on the following page.

Nongraduates

More Middle Women vs.	More High Men	More Middle Women vs.	More Middle Men	More Middle Women vs.	More Low Men
		F (<49)	F (50-69)	F (<49)	F (50-69)
				K (50-69)	K (<49)
		1 (<49)	1 (70+)	1 (<49)	1 (70+)
2 (<49)	2 (50-69)	2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)
		3 (<49)	3 (50-69)	3 (<49)	3 (50-69)
		4 (<49)	4 (70+)	4 (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
				6 (70+) (50-69)	6 (<49)
		7 (50-69) (<49)	7 (70+)	7 (50-69) (<49)	7 (70+)
		8 (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)	9 (70+)	9 (<49)	9 (70+)
		10 (50-69)	10 (<49)		10 (<49)

c. Low Women Versus High, Middle, and Low Men Nongraduates

Fewer MMPI score differences were found between Low ability women and High men Nongraduates than between Low women versus Middle and Low men. Low ability women and High men had three significantly different proportions on one scale (5). In contrast, Low women and men had 27 significantly different proportions on 11 scales (L, F, K, 1, 2, 4, 5, 6, 7, 8, 9); and Low women and Middle men had 22 significantly different proportions on ten scales (L, F, 1, 2, 5, 6, 7, 8, 9, 10).

No significant differences occurred between Low women versus High men on Scales L, K, 1, 2, 6, 7, 8, and 9, although differences were found between Low women versus Middle and Low men on these scales. Scales K and 4 yielded no significant differences between Low women versus High and Middle men, although significant differences were found between High women and Low men. No significant differences were found on Scale 10 between Low women versus High and Low men, although differences were found between Low women and Middle men Nongraduates on Scale 10.

MMPI T scores above 70 were earned:

On one scale (5) by High men
Nongraduates in contrast to none by Low women

On six scales (1, 2, 5, 7, 8, 9) by Middle men
Nongraduates in contrast to one scale (6) by Low women

On seven scales (1, 2, 4, 5, 7, 8, 9) by Low men
Nongraduates in contrast to one scale (6) by Low women

MMPI T scores below 49 were earned:

On one scale (5) by Low women
Nongraduates in contrast to none by High men

On seven scales (F, 1, 2, 5, 7, 8, 9) by Low women
Nongraduates in contrast to two scales (L, 6) by Middle men

On eight scales (F, 1, 2, 4, 5, 7, 8, 9) by Low women
Nongraduates in contrast to three scales (L, K, 6) by Low men

MMPI T scores between 50 and 69 were earned:

On no scale by Low women
Nongraduates in contrast to one scale (5) by High men

On three scales (L, 7, 10) by Low women
Nongraduates in contrast to three scales (F, 2, 5) by Middle men

On five scales (L, 4, 6, 7, 8) by Low women
Nongraduates in contrast to three scales (F, 2, 5) by Low men

Thus, data for Low women versus High men Nongraduates revealed that Low women more frequently had MMPI T scores below 49 on Scale 5; whereas High men more frequently had T scores above 70 as well as between 50 and 69 on Scale 5.

Comparisons of Low women versus Middle men Nongraduates showed that Low women more frequently had MMPI T scores above 70 on Scale 6; between 50 and 69 on Scales L, 7, and 10; and below 49 on Scales F, 1, 2, 5, 7, 8, and 9; whereas Middle men more frequently had scores above 70 on Scales 1, 2, 5, 7, 8, and 9; between 50 and 69 on Scales F, 2, and 5; and below 49 on Scales L and 6.

Analyses for Low women versus Low men Nongraduates revealed that Low women more frequently had MMPI T scores above 70 on Scale 6; between 50 and 69 on Scales L, 4, 6, 7, and 8; and below 49 on Scales F, 1, 2, 4, 5, 7, 8, and 9; whereas Low men more frequently had T scores above 70 on Scales 1, 2, 4, 5, 7, 8, and 9; between 50 and 69 on Scales F and 5; and below 49 on Scales L, K, and 6.

All of these differences are listed on the next page.

Nongraduates

More Low Women vs.	More High Men	More Low Women vs.	More Middle Men	More Low Women vs.	More Low Men
		L (50-69)	L (<49)	L (50-69)	L (<49)
		F (<49)	F (50-69)	F (<49)	F (50-69)
					K (<49)
		1 (<49)	1 (70+)	1 (<49)	1 (70+)
		2 (<49)	2 (70+) (50-69)	2 (<49)	2 (70+) (50-69)
				4 (50-69) (<49)	4 (70+)
5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)	5 (<49)	5 (70+) (50-69)
		6 (70+)	6 (<49)	6 (70+) (50-69)	6 (<49)
		7 (50-69) (<49)	7 (70+)	7 (50-69) (<49)	7 (70+)
		8 (<49)	8 (70+)	8 (50-69) (<49)	8 (70+)
		9 (<49)	9 (70+)	9 (<49)	9 (70+)
		10 (50-69)			

d. Summary - Nongraduates

Results of the MMPI chi-square analyses and tests of differences between proportions indicated that High, Middle and Low ability women who did not graduate from college differed statistically in their personality characteristics from High, Middle, and Low ability men who did not graduate from college.

Fewer significant differences in MMPI scores were found between High ability men versus High, Middle, and Low women Nongraduates. More significant differences were found between Middle and Low men versus High, Middle, and Low women Nongraduates.

Figures 29, 30, 31, 32, 33, and 34 show, in a summary fashion, for each female and male ability group the MMPI scales and T score categories for which significantly different proportions were found.

High ability women Nongraduates more frequently had:

below 49 scores on Scales 1, 2, 5, and 9;

below 49 and between 50-69 scores on Scales 4, 7, and 8;

between 50-69 scores on Scale K;

above 70 and between 50-69 scores on Scales 6 and 10; and

above 70 scores on Scale 3.

Middle ability women Nongraduates more frequently had:

below 49 scores on Scales F, 1, 2, 3, 4, 5, and 9;

below 49 and between 50-69 scores on Scales 7 and 8;

between 50-69 scores on Scales K and 10; and

above 70 and between 50-69 scores on Scale 6.

Low ability women Nongraduates more frequently had:

below 49 scores on Scales F, 1, 2, 5, and 9;

below 49 and between 50-69 scores on Scales 4, 7, and 8;

between 50-69 scores on Scales L and 10; and

above 70 and between 50-69 scores on Scale 6.

High ability men Nongraduates more frequently had:

between 50-69 scores on Scale 2; and

above 70 and between 50-69 scores on Scale 5.

Middle ability men Nongraduates more frequently had:

below 49 scores on Scales L, 6, and 10;

between 50-69 scores on Scales F and 3;

above 70 and between 50-69 scores on Scales 2 and 5; and

above 70 scores on Scales 1, 4, 7, 8, and 9.

Low ability men Nongraduates more frequently had:

below 49 scores on Scales L, K, 6, and 10;

between 50-69 scores on Scales F and 3;

above 70 and between 50-69 scores on Scales 2 and 5; and

above 70 scores on Scales 1, 4, 7, 8, and 9.

In the results concerning significantly different proportions, High ability women Nongraduates more frequently had T scores above 70 on three scales--3, 6, and 10--whereas Middle and Low ability women each had above 70 T scores on Scale 6. In contrast, T scores above 70 were earned more frequently by High ability men Nongraduates on one scale--5; by Middle ability men on seven scales--1, 2, 4, 5, 7, 8, and 9; and by Low ability men on seven scales--1, 2, 4, 5, 7, 8, and 9.

Scores below 49 were earned significantly more frequently by each group of High and Low women Nongraduates on eight scales--F, 1, 2, 4, 5, 7, 8, and 9; and by Middle women on eight scales--F, 1, 2, 3, 4, 5, 7, 8, and 9. In contrast, scores below 49 were earned significantly more frequently by Low men Nongraduates on four scales--L, K, 6, and 10; and by Middle men on three scales--L, 6, and 10; whereas High men had none.

T Score Categories	High Women Nongraduates -- MMPI Scales											
70+ (High)					3			6				10
50-69 (Average)		K				4		6	7	8		10
49 (Low)	F		1	2		4	5		7	8	9	

Figure 29: MMPI Scales and T Score Categories on which High Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates

T Score Categories	Middle Women Nongraduates -- MMPI Scales											
70+ (High)								6				
50-69 (Average)		K						6	7	8		10
<49 (Low)	F		1	2	3	4	5		7	8	9	

Figure 30: MMPI Scales and T Score Categories on which Middle Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates

T Score Categories	Low Women Nongraduates -- MMPI Scales										
70+ (High)							6				
50-69 (Average)	L				4		6	7	8		10
<49 (Low)		F	1	2	4	5		7	8	9	

Figure 31: MMPI Scales and T Score Categories on which Low Ability Women Nongraduates Scored Significantly More Frequently than High, Middle, and Low Ability Men Nongraduates

T Score Categories	High Men Nongraduates -- MMPI Scales		
70+ (High)		5	
50-69 (Average)	2	5	
<49 (Low)			10

Figure 32: MMPI Scales and T Score Categories on which High Ability Men Nongraduates Scored Significantly More Frequently than High, Middle and Low Ability Women Nongraduates

T Score Categories	Middle Men Nongraduates -- MMPI Scales											
70+ (High)			1	2		4	5		7	8	9	
50-69 (Average)		F		2	3		5					
<49 (Low)	L							6				10

Figure 33: MMPI Scales and T Score Categories on which Middle Ability Men Nongraduates Scored Significantly More Frequently than High, Middle and Low Ability Women Nongraduates

T Score Categories	Low Men Nongraduates -- MMPI Scales												
70+ (High)				1	2		4	5		7	8	9	
50-69 (Average)		F			2	3		5					
<49 (Low)	L		K						6				10

Figure 34: MMPI Scales and T Score Categories on which Low Ability Men Nongraduates Scored Significantly More Frequently than High, Middle and Low Ability Women Nongraduates

High, Middle, and Low ability men Nongraduates had fewer scales where they earned significantly more frequently T scores between 50 and 69 than did varying ability women Nongraduates. T scores between 50 and 69 were earned significantly more frequently by High men on two scales--2 and 5; by Middle men on four scales--F, 2, 3, and 5; and by Low men on four scales--F, 2, 3, and 5. In contrast, T scores between 50 and 69 were earned significantly more frequently by High women Nongraduates on six scales--K, 4, 6, 7, 8, and 10; by Middle women on five scales--K, 6, 7, 8, and 10; and by Low women on six scales--L, 4, 6, 7, 8, and 10.

Figures 35 and 36 summarize the combined ability findings for significantly different proportions in MMPI scores between women Nongraduates and men Nongraduates. T scores above 70 were earned significantly more frequently by men Nongraduates on Scales 1, 2, 3, 5, 7, 8, and 9; and by women Nongraduates on Scales 3, 6, and 10.

T scores below 49 were earned significantly more frequently by women Nongraduates of varying ability on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9; and by men Nongraduates on Scales L, K, 6, and 10.

T scores between 50 and 69 were earned significantly more frequently by women Nongraduates of varying ability on Scales L, K, 4, 6, 7, 8, and 10; and by men Nongraduates on Scales F, 2, 3, and 5.

Thus, women Nongraduates of varying ability significantly more frequently had:

below 49 MMPI scores on Scales F, 1, 2, 3, 5, and 9;

below 49 and 50-69 scores on Scales 4, 7, and 8;

between 50-69 scores on Scales L and K;

above 70 and 50-69 scores on Scales 6 and 10; and

above 70 scores on Scale 3.

Men Nongraduates of varying ability significantly more frequently had:

below 49 scores on Scales L, K, 6, and 10;

between 50-69 scores on Scales F and 3;

above 70 and 50-69 scores on Scales 2 and 5; and

above 70 scores on Scales 1, 4, 7, 8, and 9.

Scores between 50 and 69 were earned significantly more frequently by High women Nongraduates on seven scales--K, 4, 5, 6, 7, 8, and 10; by Middle women on six scales--K, 5, 6, 7, 8, and 10; and by Low women on six scales--4, 5, 6, 7, 8, and 10. In contrast, T scores between 50 and 69 were earned significantly more frequently by each group of Middle and Low men Nongraduates on three scales--F, 2, and 3; and by High men on one scale--2.

T Score Categories	Women Nongraduates -- MMPI Scales												
70+ (High)						3			6				10
50-69 (Average)	L		K				4		6	7	8		10
<49 (Low)		F		1	2	3	4	5		7	8	9	

Figure 35: MMPI Scales and T Score Categories on which Women Nongraduates of Varying Ability Scored Significantly More Frequently than Men Nongraduates of Varying Ability

T Score Categories	Men Nongraduates -- MMPI Scales												
70+ (High)				1	2		4	5		7	8	9	
50-69 (Average)		F			2	3		5					
<49 (Low)	L		K						6				10

Figure 36: MMPI Scales and T Score Categories on which Men Nongraduates of Varying Ability Scored Significantly More Frequently than Women Nongraduates of Varying Ability

CHAPTER VII

DISCUSSION AND IMPLICATIONS

Chapter VII presents a discussion of the results reported in Chapters V and VI. Results of the MMPI analyses are discussed first. A general discussion then integrates all the results of the investigation, and points out implications for further research.

A. PERSONALITY CHARACTERISTICS - GRADUATES

Results of the investigation indicated that differences in personality characteristics existed between the women and men Graduates of High, Middle, and Low ability. These differences were revealed in two ways. First, statistically significant differences were found in the score distributions on the single scales of the MMPI. Second, statistically significant differences were found in the mean scores. The direction of these differences in mean scores supported the differences found in the MMPI scale score distributions.

The statistically significant differences found in the MMPI scale score distributions varied according to which female and male ability groups were being compared. In general, however, the differences were consistent across the women Graduates of varying ability in the comparisons with men Graduates of varying ability. Women graduates of varying ability, as a whole, had lower (49) scores on Scales 1, 2, 3, 5, and 9; lower (49) to average (50-69) scores on scales 4, 7, and 8; average (50-69) scores on Scales L and K; and higher (70+) to average (50-69) scores on Scales 6 and 10. In contrast, men Graduates of varying ability had lower (49) scores on Scales L, K, and 6; average scores (50-69) on Scale 3; higher (70+) to average (50-69) scores on Scales 1, 2, 4, and 5; and higher (70+) scores on Scales 7, 8, 9, and 10.

Some of the major characteristics associated with these MMPI scales and given T scores categories are briefly described below to provide some idea as to what these results mean in terms of personality characteristics of women and men Graduates of varying ability. These characteristics have been taken from MMPI studies (Black, 1953, 1956a; Bolander, 1947; Brown, 1946; Butcher, 1969; Carkhuff, Barnett, & McCall, 1965; Carson, n.d.; Cottle, 1953; Dahlstrom & Welsh, 1960; Drake & Oetting, 1957, 1959; Faunce & Loper, 1972; Fry, 1949; Goodstein, 1954; Gough, 1948; Guthrie, 1948, 1949; Hathaway & Meehl, 1952; Hathaway & Monachesi, 1953, 1963; Hovey, 1953; Lauber & Dahlstrom, 1953; Loper, Robinson, & Swanson, 1968; McKinley & Hathaway, 1944; Meehl, 1951; Mello & Guthrie, 1958; Morgan, 1952; Rosen, 1956; Schiele, Baker, & Hathaway, 1943) which have indicated that within "normal" populations, profile peaks and valleys have a significant meaning with respect to an individual's personality; and that adjectives and descriptions such as found in these studies are employed with stability and uniformity in relation to normal subjects. The findings of these studies seemed to substantiate the early statement by Daniels and Hunter:

> In contrast to a rather common interpretation of the MMPI that a score below 70 does not indicate a significant personality deviation, it is believed that any individual deviation from the mean T score, either positive or negative, is indicative of a certain tendency toward behavior in that direction, and that extremes such as a critical T score are not necessary for the instrument to have definite meaning and applications... (1949, p. 562)

Characteristics relevant to the MMPI results significant for men Graduates are discussed first; and for women Graduates, second.

1. Men Graduates

Low L

More High men than High, Middle, Low women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

A low L score indicates a relative comfort and poise in admitting social faults although there may be, along with this freedom, either a tendency to deny other kinds of psychological limitations or an actual exhibitionism in revealing mental and moral faults.

Low K

More High men than High, Middle   women Graduates
More Middle men than High, Middle   women Graduates
More Low men than High, Middle, Low women Graduates

A low K score indicates an exhibition of personal defects and troubles; and exaggeration of the ills of the world; suspicion of the motivation of others; and caustic manners. Individuals with low K scores have been described as awkward, cautious, peaceable, high strung, cynical, dissatisfied, individualistic, candid, and as having low self-esteem.

High and Average 1 (HS)[8]

More Middle men than High,   Low women Graduates
More Low men than High,   Low women Graduates

More High men than High, Middle,   women Graduates

Scale 1 is a gross index of something related to optimism--pessimism. High scorersare sour on life, whiny, complaining, and generally handle their hostile feelings by making those around them miserable. They frequently use somatic complaints to control others and use physical symptoms as a defense. They tend to be cynical and defeatists, especially as regards others' efforts to help them.

Male high scorers have been judged to be unambitious, lacking in drive, narissistically egocentric, and dull. On the other hand, men with moderately high elevations have been described as sociable, in both senses of mixing well and being forward, enthusiastic, kind, grateful, versatile, courageous, and having wide interests.

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[8] The first score range mentioned is the first score range listed.

High and Average 2 (D).[8]

More High men than High, Low women Graduates
More Middle men than High, Low women Graduates
More Low men than High, Low women Graduates

More High men than High, Middle, Low women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

A high 2 score indicates a significant degree of self-dissatisfaction and self-criticism. The personality processes involved with a high 2 act against closeness between the person and his peers. This social distance and reserve can be seen in the descriptions of high 2 men: modest, sensitive, individualistic; dissatisfied generally, but particularly self-dissatisfied; emotional, high strung, prone to worry; generous, sentimental; serious, seem to be verbal, and to have general aesthetic interests.

Other descriptions of high 2 men have included aloof, apathetic, cautious, conventional, dull, evasive, indifferent, leisurely, moody, painstaking, patient, peaceable, quiet, retiring, silent, simple, slow, submissive, timid, unassuming, unexcitable, and withdrawn. An overcontrol, slow personal tempo, and an inability to make decisions without hesitation and vacillation have been noted. They have also been seen as conforming, conscientious, responsible, but with a lack of confidence in their own ability and a pessimism about their own careers and development. Although they respect others, and are permissive and accepting, they avoid becoming involved in things, and to maintain a coldness and distance in their relationship with others. In difficult situations they tend to sidestep troubles and make concessions to avoid unpleasantness.

College men counselees have exhibited a low moral, unhappiness or depression, and problems involving adjustment to the academic phases of college life, studying, vocational choice, as well as problems involving relations with the opposite sex.

Average 3 (Hy)

More High men than High, Middle, women Graduates
More Middle men than Middle, women Graduates
More Low men than High, Middle, women Graduates

High 3 scorers are extremely naive and self-centered in outlook. They are also idealistic, articulate, ill under stress, and social. They have strong needs to be liked and are very demanding of affection and support and endeavor to get these by indirect, but obtrusively manipulative means. They often are highly visible but rather uninhibited in social relations, but such relations are carried on at a superficial, immature level. Some high 3 people act out sexually and aggressively in blatant fashion with convenient and often incredible inattention to what they are doing. They are, on the whole, people blandly without insight.

High and moderate 3 men seem accessible and to form intimate relationships as indicated by descriptions of them as fairminded, persevering, prone to worry, enterprising, alert, generous, mature, clear-thinking, talkative, kind, energetic, enthusiastic, assertive, socially forward, adventurous, affectionate, sentimental, cooperative, good-tempered, grateful, verbal, courageous, and individualistic. They are also said to mix well socially and to have wide interests.

Other descriptions have included clever, enterprising, imaginative, impatient, thankless, infatile, inhibited, both irresponsible and responsible, spunky, and independent in judgment.

High and Average 4 (Pd)[8]

More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

More Middle men than High women Graduates

High 4 people are generally characterized by angry disdentification with recognized conventions; their revolt may be against family or society or both. Many high 4s exhibit an apparent inability to plan ahead, if not a reckless disregard of the consequences of their actions, and unpredictability is a feature of their behavior. Usually social relationships are shallow; the individual rarely develops strong loyalties of any kind. These people sometimes make a good impression at first, but on longer acquaintance their essential unreliability, moodiness, and resentment become apparent. They may justify their disregard of convention on the basis of being "above" mere propriety, reflecting the high value many of them place on themselves. A high 4 is associated with inability to profit from experience, including counseling or psychotherapy.

Adjectives decriptive of high 4 normal males have included adventurous, courageous, sociable in both senses of the word (socially forward and mixing well), talkative and verbal, enthusiastic, good-tempered, frank, generous, fair-minded, individualistic, and as having wide interests.

Others have described high 4 normal males in a more devaluative fashion: hostile, aggressive in their personal relationships, sarcastic and cynical, ostentatious and exhibitionistic, immature, irritable, leisurely, unemotional, tense, moody, nervous, and resentful.

The role of a high 4 in college counseling cases has appeared to be an index of rebelliousness rather than an indication of the acting out of base impulses. Such high 4 students resent authority and are hostile toward their parents, whom they blame for all of their problems. Their immediate concerns center around vocational choices. Their indecisive states are complicated by unstable relationships with the opposite sex and, at times, by a rejecting father. Such students continue to return for scheduled counseling interviews but are generally resistant to therapy. Since they resort to intellectualization and stereotyped repetition of their problems, their response to therapy is minimal.

High and Average 5 (Mf)[8]

More High men than High, Middle, Low women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

More High men than High, Middle, Low women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

A high coding of Scale 5 among men is particularly frequent in an educational setting. Clear elevations are indicative of nonidentification with the culturally prescribed masculine role. A high point 5 can also be an inhibitor or a control of what would otherwise be patterns suggestive of "deliquent" behavior, or control of aggressive or nonconforming behavior.

High 5 men are psychologically complex and inner directed. They value cognitive pursuits and derive important satisfactions from such work and achievements. At times, they show a great deal of self-awareness and self-concern. They are socially perceptive and responsive to interpersonal nuances and as able to draw dependable and practical inferences; these attributes show up as good judgment and common sense. They can be fluent verbally with an ability to communicate ideas clearly and effectively and to win people over to their point of view.

High 5 men have been described as having a wide range of interests as well as general aesthetic interest, imaginative, sensitive, prone to worry, idealistic, peaceable, sociable, curious, ambitious, capable, cautious, clear-thinking, effeminate, fair-minded, foresighted, fussy, imaginative, insightful, logical, mature, nervous, organized, persevering, planful, precise, self-controlled, serious, sharp-witted, submissive, and tolerant.

Low 6 (Pa)

More High men than High, women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

There may be little essential difference between a high and low 6 score. Low 6 people are overly cautious in what they say about themselves. They are stubborn and evasive, often feeling that dire consequences will follow upon revealing themselves in any way. A low 6 among men may reflect personal insensitivity. Low 6 men have been described as cheerful, mild, balance, decisive, wary with narrow interests but also as self-distrusting and conscienceless.

High 7 (Pt)

More High men than High, Middle, Low women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

Scale 7 is a general measure of anxiety and ruminative self doubt. High scorers tend to be obsessionally worried, tense, indecisive, and unable to concentrate. High 7 normal men have been described as idealistic, sentimental, peaceable, good-tempered, individualistic, insightful, formal, dull, unemotionable, immature, and quarrelsome.

College men counselees frequently display obsessive-compulsive ruminations and morbid introspective trends. They are nonresponsive or non-verbal, tense, indecisive, unhappy, worry a great deal, and experience confusion and insomnia. Their problems center around poor study habits, poor personal relations, difficulty with authority figures, mother and sibling conflicts, lack of skills with the opposite sex, and concern about religious values and morality.

High 8 (Sc)

More High men than High, Middle, women Graduates
More Middle men than High, Middle, Low women Graduates
More Low men than High, Middle, Low women Graduates

A high 8 score is indicative of social alienation, isolation, and general dissatisfaction. High scorers on 8 almost always feel alienated, misunderstood, and peculiarly not a part of the general social environment. They have fundamental and disturbing questions about their own identity and worth; are withdrawn people who have little or nothing in the way of social relationships; and show some difficulty in thinking and communication.

High 8 normal men have been described as prone to worry, self-dissatified, conscientious, good-tempered, versatile, verbal, enthusiastic, frank, fair-minded, courageous, and as having wide interests as well as general aesthetic interests. Emotionally they appear to be kind, sentimental, and peaceable.

Other descriptions have been less favorable. While high 8 normal men appear to be effective in communicating their ideas clearly, they show evidence of being at odds with themselves and of having major internal conflicts. The descriptive adjectives include dissatisfied, hostile, blustery, irritable, resentful and touchy, moody, stubborn, opinionated, autocratic, deceitful, disorderly, and impulsive. However, they also display wide interests and inventiveness, as well as imaginative, mischievous, and sharp-witted behavior.

College men counselees indicate problems in peer relationships and group acceptance, as well as lack of knowledge and confusion. They also are indecisive, unhappy, worry a great deal, and experience insomnia.

High and Average 9 (Ma)[8]

More Middle men than High, Middle, women Graduates
More low men than High, Middle, Low women Graduates

More Middle men than High women Graduates

High 9 scorers are warm, enthusiastic, expansive, generally outgoing, and uninhibited. They tend to become easily offended, however, and may be seen as tense and hyperactive. Many high 9 people have an unusual capacity for sustained activity and effort. Above a T score of 70, however, there is increasing liklihood of maladaptive hyperactivity, irritability, and insufficient inhibitory capacity.

One major theme running through the adjectives characteristic of normal males with high 9 scores centers about their sociability, energy, and openness. They have been described as sociable in the sense of forward, talkative and verbal, individualistic, impulsive, enthusiastic, adventurous, and curious. Another theme is reflected in the description of them as generous, softhearted, affectionate, and sentimental. They have also been described as prone to worry, self-dissatisfied, and conventional.

Other descriptions are somewhat less favorable. While they are seen as expressive, ebullient persons, they also are characterized as guileful and potentially deceitful. Their actions appear to be importantly influenced by intangible subjective feelings that are diffuse and highly personal in nature. They seek and enjoy aesthetic and sensuous impressions. The characteristic adjectives strengthen this view of the high 9 male: sensitive, thoughtful, and imaginative, as well as anxious, nervous, deceitful, and unfriendly.

Male college counselees with peak scores on Scale 9 do not often show a hypomanic picture in their presenting complaints when seeking helf. They are most frequently concerned with personal relationships stemming from problems in the local college setting, and from rebelling against dominant parents. In the course of treatment, high 9 students are resistant and irregular in attendance, and frequently terminate their therapy very early. Their resistances takes the form of intellectualization changing the subject, and repetition of their problems in a stereotyped manner. They do not become dependent on the therapist but remain guarded and hostile in their relations with him.

High and Low 10 (Si)[8]

More High men than Middle women Graduates
More Middle men than Middle, women Graduates
More Middle men than High, Middle, Low women Graduates

Scale 10 provides a fairly gross, but sometimes quite useful, index of comfort in interpersonal relationships. High scorers tend to be withdrawn, aloof, and anxious in contact with people. Patterns with a high coding of Scale 10 are related to various aspects of social adjustment in college and are found among persons showing introvertive characteristics, especially shyness, social insecurity, and social withdrawal.

Adjectives associated with high 10 score for men seem quite similar: apathetic, slow, dull, retiring, unambitious, silent, simple, modest, and conventional. There also seems to be a quality of ineffectiveness or maladjustment in the descriptions. High 10 men have been described as slow in personal tempo, stereotyped, lacking originality in approach to problems. The implication seems to be that these men show such qualities as part of a general insecurity. They have also been described as unable to make decisions without vacillation, hesitation, or delay; as rigid and inflexible in thought and action; as overly controlled and uninhibited; as lacking confidence in their own abilities; as conforming and following prescribed methods in what they do; and as fussy and pedantic in even minor matters.

In their relations with others, they have been seen as lacking poise and social presence, and as becoming rattled and upset in a social situation. Perhaps as a consequence, high 10 men also have been rated as cold and distant. They appear not to be affected in this aloofness, however, but appear free of pretense and conscientious and dependable in their responsibilities. They seem to derive personal reward and pleasure from their work and place a high value on productive achievement for its own sake.

Toward authority, these men tend to be submissive, compliant, and overly accepting. They tend to sidestep as a way of handling troublesome situations. They either make concessions to avoid unpleasantness or passively resist pressures by not getting involved in things. They are generally permissive and accepting, however, in their relations with others, respecting other people and not making judgments. As a result these high 10 men keep out of trouble and show socially appropriate behavior. They get along well in the world as it is.

A low coding of Scale 10 among college men can be indicative of an adequate social adjustment, even in patterns that are usually associated with somewhat serious problems. Thus, when Scale 10 is coded low there may be a tempering of problems often associated with the scales making up the rest of the pattern. However, a low coding of 10 does not, among college men, extend to parental relationships and suggest freedom from parental conflicts (as it does for college women); and a low coding of 10 has appeared to be related to overaggressiveness among college men.

Low 10 normal men have been described as versatile, sociable in the sense of mixing well, and have been seen as expressive, ebullient, colorful persons. They have been found to be ostentatious and exhibitionistic; and active, vigorous, and competitive with their peers. They show strong initiative and take the ascendant role in relations with others. They appear to be verbally fluent and facile as well as persuasive and often win others over to their viewpoint. They also manipulate others in attempting to gain their own ends, seeing things rather opportunistically rather than being sensitive to the meaning and value of persons as individuals. They are also seen as potentially guileful and deceitful. They emphasized oral pleasure in a self-indulgent way, seeking aesthetic and senuous impressions. They appear unable to delay gratification and often act with insufficient thought and deliberation. This undercontrol of their impulses, combined with their tendencies to get ego-involved in many different things, leads to a characteristic aggressiveness or hostility in their personal relations. These men emphasize success and productive achivement as a means for achieving status, recognition and power. They readily became counteractive in the face of frustration and easily arouse hostility and resentment in those with whom they deal.

Low 10 men have also been described as active, ambitious, blustery, immature, hasty, quick, ingenious, witty, and as having initiative.

2. Women Graduates

Average L

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than High, Middle, Low men Graduates

An average L score indicates a need to present a good front, some defensiveness, and a tendency to cover up and deny undesirable personal faults. The individual is saying good things about herself and is attempting to place herself in a good social and moral light. This may be a reflection of the individual's own pervasive view of themself which includes an inadequate understanding of either the motives behind their own actions or the consequences of them.

Average K

More High women than High, Middle, Low men Graduates
More Middle women than Middle, Low men Graduates

An average K score may reflect a set toward social desirability. It also indicates some defensiveness, but the defensiveness is a part of a general concept in which self-enhancement and personal reserve are but a part. K scores at this level also indicate high self-acceptance and ego-strength, and that the individual is quite satisfied with herself. Such people are poised and comfortable in social situations.

Women with K scores at this level have been described as enterprising, ingenious, resourceful, sociable, reasonable, enthusiastic, prudent, circumspect, as having wide interests, and as capable of handling their problems.

Low 1 (Hs)

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than High, Middle, Low men Graduates

A low 1 may suggest infrequent use of physical symptoms as a defense and a more frequent use of other kinds of behavior. Effectiveness in living is suggested by a low 1; and low scorers have been described as alert, capable, responsible, and warm. Low scoring women have been described as balanced, conventional, alert, quick to adjust, and at ease in oral expression. The overall picture seems to be one of freedom from hampering, neurotic inhibitions, from over-evaluation of oneself and one's own problems, and from undue concern about the adverse reactions of others. These persons are also characterized by an energetic and spontaneous pursuit of the goals and aims in which they have a sincere interest and investment.

Low 2 (D)

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than High, Middle, Low men Graduates

Low 2 people are active, alert, cheerful, and outgoing and are likely to be seen by others as enthusiastic, self-seeking, and perhaps given to self-display. Low scorers on Scale 2 seem to reflect a naturalness, buoyancy, and freedom of thought and action that lead to easy social relations, confidence in taking on tasks, and effectiveness in a variety of activities. The lack of inhibition in low 2's may in certain contexts lead to negative reactions from others, however, as a result of hurt feelings, slighted friendships, and threatened confidences.

A low 2 score is related to extroversion or socially outgoing characteristics among college women. Low 2 women have been described as good socializers, poised and at ease in social situations, adaptable, practical, cooperative, easygoing, reasonable, cheerful, good-tempered, talkative, energetically spirited, efficient, emotionally stable, able to adjust rapidly, desirous of responsibility, easy in oral expression, and to have initiative.

Low 3 (Hy)

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates

Normal subjects with low 3 scores are not well delineated; and little of a reliable nature is known about low 3 people although many of them seem to be socially isolated, cynical, and generally misanthropic.

Low 3 normal women have been described as facing life, balanced, conventional, as having general aesthetic interests, and as self-confident but lacking in industriousness. It has been noted that a low coding of Scale 3 is probably of little importance in interpreting MMPI profiles for female college counselees at present.

Low and Average 4 (Pd)[8]

More High women than Middle, Low men Graduates
More Middle women than Middle, Low men Graduates
More Low women than Middle, Low men Graduates

More High women than Low men Graduates
More Middle women than Low men Graduates
More Low women than Low men Graduates

High and low 4 normal people show marked differences in drive, energy, and spontaneity; and low 4 normal girls do not have the high degree of social visibility of the high 4 normal girls. Low scorers on 4 tend to be conventional and overidentified with social status.

Low 4 women have been described as conventional, balanced, modest, good-tempered, temperate, persevering, and willing to accept suggestions. They usually exhibit conformity with the mores of the social group and have concern regarding the attitudes of other people.

Low 5 (Mf)

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than High, Middle, Low men Graduates

Scale 5 is frequently coded low in college women. Coded low, 5 may fit a more or less general concept of femininity, in intensifying some of the behavior associated with other scales. A low 5 may also function in women as a control of aggressive behavior.

Descriptions of low 5 women suggest a generally effective person--sensitive, idealistic, self-critical, responsive, modest, grateful, and wise. College women with 5 as the low point in their profiles have been described as worldly, popular, decisive, and versatile.

High and Average 6 (Pa)[8]

More High women than Middle men Graduates

More High women than High, Middle, Low men Graduates
More Middle women than Middle, Low men Graduates

The correlates of Scale 6 can change markedly in character as the elevation shifts from moderate values to the higher ranges; although the meaning of Scale 6 scores in the broad middle range have for the most part remained obscure.

Scale 6 was designed to assess such personality characteristics as oversensitivity and suspisciousness. High 6 scores tend to characterize people who are subjective and sensitive; who feel that what is said or done is aimed specifically at them; and who may interpret criticism of their ideas as criticism of themselves.

High 6 normal women have been described as being emotional, softhearted, sensitive, frank, high strung, dependent, submissive, lacking in self-confidence, and not outgoing. Among college women counselees there is some support for the interpretation of a high coding of Scale 6 as an indicator of personal sensitivity and perhaps extreme concern about the reaction of others to something perceived by the counselee as a deficiency.

Others have described high 6 college women as either more mature or more infantile than the average college woman as well as affected, shrewd, clever, hardhearted, arrogant, ruthless, and unemotional.

These lists of descriptive adjectives provide no straightforward interpretation. It has been suggested that either the scale can select two (or more?) distinct groups of people or the high 6's are principally characterized by conflicting, contrasting, and inconsistent behavior, and that perhpas to a greater extent than with other scales, the meaning of a high 6 or a 6 peak is dependent upon its absolute magnitude and upon the secondary peaks of the MMPI or whether or not the entire profile is low with a 6 peak.

Low and Average 7 (Pt)

More High women than High, Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than Low men Graduates

More High women than Low men Graduates
More Middle women than Middle, Low men Graduates
More Low women than Middle, Low men Graduates

Low scorers on Scale 7 are usually relaxed, self-confident, and secure. Low 7 normal women have been described by others as cheerful, and have described themselves as balanced, relaxed, alert, having wide interests, self-confident, placid, and trustful.

Low and Average 8 (Sc)[8]

More High women than Middle, Low men Graduates
More Middle women than High, Middle, Low men Graduates
More Low women than Middle, Low men Graduates

More High women than Middle, Low men Graduates
More Middle women than Low men Graduates
More Low women than Low men Graduates

Descriptive adjectives of low 8 subjects seem to emphasize certain control and restraint in their behavior; mild, timid, cautious, conservative, conventional, responsible and self-controlled, dependable, steady, mannerly, obliging, moderate, precise, peaceable, honest, and thrifty. The picture is not one of extreme overcontrol in that these same people have also been described as friendly, adaptable, cheerful, and good natured.

Low 8 normal women have been described as friendly and alert; and have described themselves as contented, trustful, sensitive, reverent, cheerful, and as having wide interests as well as home and family interests.

Low 9 (Ma)

More High women than Middle, Low men Graduates
More Middle women than Middle, Low men Graduates
More Low women than Middle, Low men Graduates

Scale 9 is thought to be a continuum, and that low point 9 people display an absence of those characteristics which are descriptive of high point 9's. Moderate 9 scores suggest a pleasant outgoing temperament whereas low codings of 9 are usually indicative of social shyness. A very low score on Scale 9 can suggest serious depression even when Scale 2 is not markedly elevated.

Low 9 normal women have been perceived as mature, balanced, temperate, alert, natural, adaptable; clear-thinking, reasonable, orderly, and practical. Other low 9 female descriptions have included persevering and adjusting slowly.

Low point 9 college women have been described as seclusive, quiet, modest, humble, conventional, good-tempered, as well as lacking various hypomanic traits, as unpopular, and as having narrow interests. It has been noted that a large incidence of low 9 scores occurs among students who come in for counseling and are difficult to help; and that the adjectives descriptive of these students are suggestive of a lack of drive or strong motivational forces which might account for the difficulty in helping such students.

High and Average 10 (Si)[8]

More High women than Middle, Low men Graduates

More High women than Middle men Graduates
More Middle women than Middle men Graduates
More Low women than Middle men Graduates

A high score on Scale 10 has already been discussed with respect to men Graduates. Differences that occur between women and men students appear to be related to sex differences in cultural and social values. In general, Scale 10 coded high among college women is suggestive of social shyness, insecurity, and lack of skills with the opposite sex. High 10 normal women have been described as modest, shy, self-effacing, and sensitive. Over and above this social submissiveness, adjectives also have been used which provide evidence of emotional warmth--kind, affectionate, soft-hearted, and sentimental. High 10 women have also been described as natural, serious, and as having home and family interests. It has been noted that high 10 women do not appear to be a group of persons who strive for social contacts and satisfactions but are blocked and thwarted in these efforts. Rather the ratings have suggested a basic preference for a certain style of life and a social pattern in keeping with emotional needs.

B. PERSONALITY CHARACTERISTICS - NONGRADUATES

Results of the investigation indicated that differences in personality characteristics existed between the women and men Nongraduates of High, Middle, and Low ability. These differences were revealed in two ways. First, statistically significant differences were found in the score distributions on the single scales of the MMPI. Second, statistically significant differences were found in the mean scores. The direction of these differences in mean scores supported the differences found in the MMPI scale score distributions.

The statistically significant differences found in the MMPI scale score distributions varied according to which female and male ability groups were being compared. In general, however, the differences were consistent across the women Nongraduates of varying ability in the comparisons with men Nongraduates of varying ability. Women Nongraduates of varying ability, as a whole, had lower (49) scores on Scales F, 1, 2, 3, 5, and 9; lower (49) to average (50-69) scores on Scales 4, 7, and 8; average (50-69) scores on Scales L and K; higher (70+) to average (50-69) scores on Scales 6 and 10; and higher (70+) as well as lower (49) scores on Scale 3. In contrast, men Nongraduates had lower (49) scores on Scales L, K, 6, and 10; average (50-69) scores on Scale F and 3; higher (70+) to average (50-69) scores on Scales 1, 2 and 5; and higher (70+) scores on Scales 4, 7, 8, and 9.

Some of the major characteristics associated with these MMPI Scales and given T score categories are briefly described below (if such descriptions have not already been provided in Section A-1 or A-2 of this chapter) to give some idea as to what these results mean in terms of personality characteristics of women and men Nongraduates of varying ability. Characteristics relevant to the MMPI results significant for men Nongraduates are discussed first; and for women Nongraduates, second.

1. Men Nongraduates

Low L

More Middle men than Low women Nongraduates
More Low men than Low women Nongraduates

See Section A-1-Men Graduates.

Average F

More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

F Scale T scores within the average through high range (65-80) are indicative of unusual or markedly unconventional thinking and frequently appear in sullen, rebelliousness personalities of the schizoed, antisocial, or "Bohemian" type. Young people struggling with problems of identity and the need to define themselves by exhibiting noncomformity frequently score in this range on F.

Individuals having moderately elevated scores on F have been described as moody, changeable, dissatisfied, opinionated, talkative, restless, and unstable.

Low K

More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High 1 (Hs)

More Middle men than Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High and Average 2 (D)

More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

More High men than Middle, women Nongraduates
More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

Average 3 (Hy)

More Middle men than Middle, women Nongraduates
More Low men than Middle, women Nongraduates

See Section A-1-Men Graduates.

High 4 (Pd)

More Middle men than Middle, women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High and Average 5 (Mf)[8]

More High men than High, Middle, Low women Nongraduates
More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

More High men than High, Middle, Low women Nongraduates
More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

Low 6 (Pa)

More Middle men than High, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High 7 (Pt)

More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High 8 (Sc)

More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

High 9 (Ma)

More Middle men than High, Middle, Low women Nongraduates
More Low men than High, Middle, Low women Nongraduates

See Section A-1-Men Graduates.

Low 10 (Si)

More High men than High, women Nongraduates
More Middle men than High, Middle, women Nongraduates
More Low men than High, Middle, women Nongraduates

See Section A-1-Men Graduates.

2. Women Nongraduates

Average L

More Low women than Middle, Low men Nongraduates

See Section A-2-Women Graduates.

Low F

More High women than Middle, Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

At the low end of the F scale can be found normal persons relatively free of stress as well as defensive persons who may be trying to cover up whatever emotional tension and distress they may be experiencing. Scores on the L and K scales may be helpful in determining whether such defensiveness is affecting the F scale score.

Low F scorers are often described as sincere, calm, dependable, honest, simple, conventional, moderate, and as having narrow interests.

Average K

More High women than low men Nongraduates
More Middle women than low men Nongraduates

See Section A-2-Women Graduates.

Low 1 (Hs)

More High women than Middle, Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

See Section A-2-Women Graduates.

Low 2 (D)

More High women than Middle, Low men Nongraduates
More Middle women than High, Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

See Section A-2-Women Graduates

High and Low 3 (Hy)[8]

More High women than Low men Nongraduates

More Middle women than Middle, Low men Nongraduates

A low 3 score has already been described with reference to women Graduates, and a high 3 score with reference to men Graduates.

High 3 normal women have been described as prone to worry, frank, enthusiastic, poised, responsive, softhearted, cheerful, friendly, cooperative and immature.

For college women (as for men), Scale 3 coded high appears to be indicative of a lack of social problems. Evidence also exists, however, that some college women who have this scale coded high show symptoms similar to those of the original criterion group. The interpretation depends on the low scale associated with the pattern. High 3 college women have been found to be verbal, tense on examinations, and to have a father and/or mother conflict.

High point 3 persons in college who seek help have been found to present problems related to unhappy home situations. The prominent pattern involved a rejecting father to which the women react with somatic complaints. Their specific worries are concern with scholastic failure, difficulty with authority figures, and lack of acceptance by their social group. These students develop dependency within the counseling situation and stay in counseling longer. Although they show cathartic release during treatment to a considerable degree, they do not achieve much insight.

High point 3 college women are described by their peers in rather uncomplimentary ways in contrast to the way in which these women see themselves. Peers describe them as flattering, irritable, religious, and as having many physical complaints, whereas high point 3 women see themselves as trustful, alert, friendly, and loyal. A lack of insight and a need to see themselves in a favorable light is implicit in the absence of any overlap between the self and peer descriptions.

Low and Average 4 (Pd)[8]

More High women than Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Low men Nongraduates

More High women than Low men Nongraduates
More Low women than Low men Nongraduates

See Section A-2-Women Graduates.

Low 5 (Mf)

More High women than High, Middle, Low men Nongraduates
More Middle women than High, Middle, Low men Nongraduates
More Low women than High, Middle, Low men Nongraduates

See Section A-2-Women Graduates.

High and Average 6 (Pa)[8]

More High women than Middle, Low men Nongraduates
More Middle women than Low men Nongraduates
More Low women than Middle, Low men Nongraduates

More High women than Middle, Low men Nongraduates
More Middle women than Low men Nongraduates
More Low women than Low men Nongraduates

See Section A-2-Women Graduates.

Low and Average 7 (Pt)[8]

More High women than low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low Men Nongraduates

More High women than Middle, Low Men Nongraduates
More Middle women than Middle, Low Men Nongraduates
More Low women than Middle, Low Men Nongraduates

See Section A-2-Women Graduates.

Low and Average 8 (Sc)[8]

More High women than Middle, Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

More High women than Low men Nongraduates
More Middle women than Low men Nongraduates
More Low women than low men Nongraduates

See Section A-2-Women Graduates.

Low 9 (Ma)

More High women than Middle, Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

More High women than Low men Nongraduates
More Middle women than low men Nongraduates
More Low women than Low men Nongraduates

See Section A-2-Women Graduates.

High and Average 10 (Si)[8]

More High women than Middle, men Nongraduates

More High women than Middle, Low men Nongraduates
More Middle women than Middle, Low men Nongraduates
More Low women than Middle, Low men Nongraduates

See Section A-2-Women Graduates.

C. GENERAL DISCUSSION

1. Graduates

Results of the present investigation indicated that while individuals from both sexes and from all ability levels graduated, the percentages who did so differed by sex and ability levels. The results also indicated that low high school grades and low scholastic ability did not necessarily mean that a young woman or man would not graduate from college.

Graduation with a baccalaureate degree was achieved by less than half of the 4,633 women (46%), and by more than half of the 5,658 men (55.7%). When one considers that these students had a minimum of eleven years (for those who entered in 1958) to a maximum of 19 years (for those who entered in 1950) to graduate, both of these graduation rates seem low.

For each sex, graduation was more frequent among Middle (17.5%) and High (16.3%) ability women than among Low (13.0%) ability women; whereas Middle (24.9%) and Low (19.5%) ability men graduated more frequently than High (11.3%) ability men.

For each ability level, more High ability women than men graduated (16.3% versus 11.3%); but more Middle ability men than women graduated (24.9% versus 17.5%), and more Low ability men than women graduated (19.5% versus 13.0%).

Sex and ability level also made a difference in the pattern of attendance to graduation, although generally speaking, the basic pattern of attendance to graduation was similar for the women and men Graduates and for the varying ability levels. For example, the most frequent quarters of graduation for both women and men were the twelfth and thirteenth quarters. However, the men took longer to graduate than did the women. The total women Graduates took 6 to 24 quarters to graduate, while the men took 6 to 33 quarters (9 more quarters!). In addition, far more women than men graduated by the end of 12 quarters (46.4% versus 33.0%), as well as by the end of 13 quarters (73.0% versus 58.7%) and 14 quarters (84.1% versus 62.8%).

This basic pattern with its differences also was true for the varying ability levels. The High ability graduated more quickly, i.e. in less time, than did the Middle and Low ability; and the Middle ability sooner than the low ability. The average graduation time was similar for High, Middle, and Low women--12.79, 13.04, and 13.36 quarters respectively--although the High ability took slightly less time. The average graduation time for the men was slightly higher than for the women, but similar among the High, Middle, and Low men--13.31, 13.66, and 14.22 quarters, respectively--although the Low ability took a somewhat longer period of time.

In addition, over half of the High ability women but less than half of the High men had graduated by the end of 12 quarters (52.8% versus 44.5%), and more High women than men graduated by the end of 13 quarters (76.7% versus 70.4%), and 14 quarters (84.4% versus 80.9%). These differences were more pronounced at the other two ability levels. Among the Middle ability, far more women than men graduated by the end of 12 quarters (43.4% versus 35.3%), 13 quarters (71.6% versus 61.1%), and 14 quarters (82.7% versus 65.3%). Likewise, among the Low ability, far more women than men graduated by the end of 12 quarters (35.4% versus 23.6%), 13 quarters (63.4% versus 49.0%), and 14 quarters (78.7% versus 65.1%).

Thus, while more men than women graduated, the women at each ability level graduated more quickly, i.e., after entry, the women completed their degree requirements in less time than the men. Also, High ability students in each sex graduated more quickly than the Middle and Low ability, and the Middle ability more quickly than the Low ability.

During the course of attendance sex and ability level also made a difference in the college of enrollment, the major field of study, and the degree earned. The men earned a greater variety of degrees; and while each sex and each ability level tended to be represented in, although not all and sometimes only by an N of one, the colleges and major fields of study, the percentages differed according to sex and ability.

At the time of graduation from the University, men were enrolled in more colleges than were women; and more men than women were enrolled in CLA (51.7% versus 39.1%), in Business (21.9% versus 1.7%), in Dentistry (4.2% versus .7%), in the Institute of Technology (4.1% versus 0.1%), in Law (3.4% versus 0.2%), and in Pharmacy (3.4% versus 0.2%). More women than men Graduates were enrolled in Education (34.8% versus 9.4%), College of Medical Sciences (18.7% versus 1.7%), Agriculture, Forestry and Home Economics (2.2% versus 1.0%), and University College (1.9% versus 1.0%).

Among the women graduates, the High ability more frequently enrolled in CLA (46.0%); the Low ability in Education (42.6%); and the Middle ability were distributed about evenly in CLA (38.7%) and Education (36.5%).

Among the men Graduates, the High, Middle and Low ability were more frequently enrolled in CLA, but more of the High (54.7%) than the Low (49.2%) or Middle (52.2%) were so enrolled; and Business had more Low (25.2%) than High (15.7%) or Middle (22.0%).

Sex and ability also made a difference in contact with the Student Counseling Bureau (SCB). Almost half of the men, but less than half of the women Graduates had contact with the Counseling Bureau.(47.7% versus 41.6%).

More Low men (58.1%) than High (51.6%) or Middle (47.1%) men Graduates had SCB contact. In contrast, and although the percentages were similar, more High (43.2%) than Low (41.9%) or Middle (40.0%) women Graduates had SCB contact.

Contact occurred among significantly more High men than High, Middle and Low women; among significantly more Middle men than Middle and Low women; and among significantly more Low men than High, Middle, and Low women Graduates.

Even more importantly for this investigation was the finding that the women tended to achieve in terms of grades and honors, at a higher level than the men. Women Graduates of High, Middle, and Low ability tended to more frequently have higher GPA's than their men counterpoints. While all of the women and men Graduates were achieving at an average grade level of C or better (the High women at a B level), High women had the highest mean GPA and Low men the Lowest mean GPA. The mean GPA's were: High women--3.09 (B), High men--2.99 (C+), Middle women--2.74 (C+), Low women--2.59 (C+), Middle men--2.58 (C+), and Low men--2.39 (C).

Statistically significant differences were found between these GPA means. High women Graduates had a significantly higher mean GPA than High, Middle, and Low men; Middle women had a higher mean GPA than Middle and Low men; and Low women had a higher mean GPA than Low men. In contrast, High men Graduates had a higher mean GPA than Middle and Low women.

Honors at graduation were achieved by more women than men; and by more of the High ability. Graduation with honors was achieved by 30.5 percent of the 2,169 women Graduates and by 15.8 percent of the 3,151 men Graduates.

With the exception of the High women, honors were achieved by less than half of all the women and men ability levels. Significantly more High (51.9%) ability women graduated with honors than did Middle (23.2%) or Low (13.3%) ability women; and significantly more Middle than Low ability women graduated with honors. Significantly more High (39.3%) ability men graduated with honors than did Middle (13.7%) or Low ability men; and significantly more Middle than Low men graduated with honors.

Each of the female ability levels more frequently achieved honors than the male counterpart and in descending rank order by ability level--High, Middle, or Low. Significantly more High women than High, Middle, and Low men graduated with honors; significantly more Middle women than Middle and Low men; and significantly more Low women than Low men. In contrast, significantly more High men than Middle and Low women graduated with honors.

2. Nongraduates

Results of the present investigation indicated tha while individuals from both sexes and from all ability levels withdrew from the University, the percentages who did so differed by sex and ability levels. The results also indicated that superior high school grades and superior scholastic ability did not necessarily ensure that a young woman or man would graduate from college. Over half of the 4,633 women (53.2%), and less than half of the 5,658 men (49.3%) withdrew from the University.

For each sex, withdrawal was more frequent among Middle (21.8%) and Low (20.4%) ability women than among High ability women; and more frequent among Low (23.2%) and Middle (17.7%) men than among High (3.4%) ability men.

For each ability level, more women than men of High ability withdrew (11.0% versus 3.4%); and more women than men of Middle ability withdrew (21.8% versus 17.7%). However, more men than women of Low ability withdrew (23.2% versus 20.4%).

Sex and ability also made a difference in the pattern of attendance before withdrawal, although, generally speaking, the pattern of attendance before withdrawal was somewhat similar, although not precisely similar for the women and men Nongraduates and for the varying ability levels. For example, the most frequent quarters of withdrawal for both women and men were the third and sixth, although the first quarter was also a frequent quarter of withdrawal for the men. However, the men stayed around longer than the women before withdrawal. The total women Nongraduates were in attendance from less than one to 45 quarters before withdrawal, whereas the men were in attendance from less than one to 73 quarters (28 more quarters!). In addition, more women than men had withdrawn by the end of three quarters (44.0% versus 39.6%), by the end of six quarters (71.8% versus 62.5%), and by the end of nine quarters (88.7% versus 81.7%).

This basic pattern with its differences also was true for the varying ability levels. The High ability tended to stay around longer before withdrawal than did the Middle and Low ability; and the Middle ability longer than the Low ability. The average attendance time was similar for High, Middle and Low ability women--5.88, 5.15, and 4.68 quarters, respectively--although the High ability remained for a slightly longer time. The average attendance time before withdrawal was higher for men than for women, but similar among the High, Middle, and Low men--6.97, 6.00, and 5.46 quarters, respectively--although the High ability remained a slightly longer period of time.

In addition, more High ability Nongraduate men than women had withdrawn by the end of the first full quarter (11.5% versus 9.0%); although more High women than men withdrew by the end of three (37.8% versus 34.4%), six (64.9% versus 52.1), and nine quarters (83.5% versus 71.5%). Among the Middle ability, slightly more men than women withdrew by the end of the first full quarter (16.6% versus 15.7%); but more Middle ability women than men withdrew by the end of three (43.9% versus 39.1%), six (70.7% versus 61.1%), and nine (88.8% versus 80.1%) quarters. A similar pattern, although to a greater extent, held true for the Low ability: more men than women left by the end of the first full quarter (19.4% versus 16.0%); but more women than men left by the end of three (47.4% versus 40.7%), six (76.6% versus 65.1%), and nine (91.4% versus 84.3%) quarters.

Thus, more women than men withdrew from the University, and they withdrew more quickly, i.e., sooner than did the men. The men remained longer in attendance before withdrawal. Also the Low ability students in each sex withdrew sooner than the Middle and High ability students, and the Middle ability sooner than the High ability.

During the course of attendance, sex and ability also made a difference in the college of enrollment, and major field of study, and the degree earned. While each sex and ability level tended to be represented in, although not all and sometimes only by an N of one, the colleges and major fields of study, the percentages differed according to sex and ability.

The vast majority of both, although more women (89.1%) than men (82.4%) were enrolled in CLA at the time of withdrawal from the University. Also, more women than men were enrolled in Education (5.1% versus 2.0%) and in Medical Sciences (1.5% versus 0.1%); while more men than women were enrolled in General College (619% versus 0.6%), and the Institute of Technology (2.9% versus 0.1%).

The pattern for women Nongraduates held true for almost similar percentages of the High, Middle, and Low ability, although slightly more Low (5.6%) than Middle (4.7%) or High (4.9%) were in Education; and slightly more High (2.4%) than Low (1.0%) or Middle (1.5%) ability were in Medical Sciences.

While almost similar percentages of High, Middle, and Low Nongraduate men were enrolled in CLA and in Education, other differences tended to exist in their colleges of enrollment. More Low (9.8%) than Middle (4.5%) were enrolled in General College at the point of withdrawal from the University, but no High ability men were enrolled. More High (9.4%) than Low (3.1%) or Middle (4.5%) ability were enrolled in Business.

The vast majority of the Nongraduate women (93.3%) and men (94.3%) did not earn a one- or two-year degree or certificate during the time they were at the University. Among those who did, the women more frequently earned an Associate of Liberal Arts (ALA) from CLA (5.6%); whereas the men more frequently earned an Associate of Arts from General College (3.2%), or and ALA. More Low than Middle or High ability women and men earned such degrees.

Sex and ability also made a difference in contact with the Student Counseling Bureau (SCB). While far less than half of the women (28.2%) and men (32.9%) Nongraduates had contact with the Counseling Bureau, more of the High, Middle, and Low men had such contact.

Contact occurred among significantly more High men (42.2%) than High (31.4%), Middle (29.2%), and Low (25.4%) women Nongraduates; among significantly more Middle men (36.3%) than Middle and Low women; and among significantly more Low men (37.8%) than High, Middle, and Low women Nongraduates.

Within the sexes, more High than Low or Middle men Nongraduates had SCB contact; and more High than Middle or Low women had contact.

Even more importantly for this investigation was the finding that the women tended to achieve, in terms of grades, at a higher level than the men. High, Middle, and Low women Nongraduates more frequently had higher GPA's than did their men counterparts. High women and men Nongraduates were achieving at a C level while the Low men were achieving at a D level and the others at a D+ level. High women had the highest mean GPA and Low men the lowest mean GPA. The mean GPA's were: High women--2.48 (C), High men-- 2.16 (C), Middle women-- 1.95 (D+), Low women--1.78 (D+), Middle men--1.69 (D+), and Low men--1.47 (D).

Statistically significant differences were found between these GPA means. High women Nongraduates had a significantly higher mean GPA than High, Middle, and Low men; Middle women had a higher mean GPA than Middle and Low men; and Low women had a higher mean GPA than Middle and Low men. High men Nongraduates had a higher mean GPA than Middle and Low women.

3. Graduates and Nongraduates

Thus, while more men than women graduated, the women graduated more quickly, and more frequently had higher grades and honors. And while fewer men than women withdrew, the women withdrew sooner and more frequently had higher grades. These findings were also true for the High, Middle, and Low ability women and their male ability counterparts.

Why should fewer women graduate and more women withdraw but still achieve at a higher level than the men; or, why should more men graduate and fewer withdraw but achieve at a lower level than the women? This question is not easily answered, at least not by the personality differences found in this investigation. The higher grade and honors achievement of the women is certainly consistent with other findings of higher achievement by women than men. And the higher graduation rate is consistent with other findings that men have a higher graduation rate than women. However, the personality differences found in this study do not clarify, at least not simply, why such findings should be the case. In fact, from the discovered personality differences, one might conclude that women should graduate in higher numbers as well as achieve at a higher level than men; and that the comparative percentages would vary by ability level.

Others have observed that personality characteristics and adjustment influence a student's level of achievement by affecting the degree to which use is made of the student's own potential. The relationship between college persistence (as well as scholastic achievement) and the non-intellective variables of personality characteristics appears to be an indirect one. The personality characteristics observed in this investigation to be descriptive of men Graduates would seem to be of such a nature as to interfere with effective motivation and study and work against effectiveness in academic performance and persistence. In addition, such characteristics would seem detrimental to happy interpersonal relationships and to the achievement of effective maturity. This is not to say that men Graduates were abnormal in the pathological sense of the word, since the results also showed that the majority of men Graduates, like the majority of the women Graduates, had scores falling within the normal ranges on the MMPI. What seems to be more the case is that the men Graduates were probably more troubled by personal problems inherent in the process of growing up, which could inhibit them from making full use of their abilities and potential. This appeared to be the case in this investigation in terms of grades and honors but not in terms of persistence. That the men may have had more problems than the women is perhaps substantiated by the finding that more men that women had contact with the Counseling Bureau. Did such contacts help them to, at least, persist in college to graduation, as opposed to achievement of higher grades or honors?

In contrast, personality characteristics found to be descriptive of women Graduates would seem to be of such a nature as to enhance and promote effective motivation and study and contribute to effectiveness in academic achievement and persistence. Such characteristics would also seem to lend themselves to the promotion of satisfactory interpersonal relationships and the achievement of effective maturity. This is not to say that women Graduates were "super-normal" and had no problems. What seems likely is that women Graduates were probably relatively less troubled by personal problems and could probably handle those problems which did occur more effectively. Thus, they were able to use and develop more fully their abilities and potential. This appeared to be the case in this investigation in terms of grades and honors but not in terms of persistence. That the women Graduates may have had fewer problems than the men is perhaps supported by the finding that fewer women had contact with the Counseling Bureau. But if more women had had contact, would that have helped more of them to persist to a baccalaureate degree?

Similar observations can be made about the Nongraduate women and men as regards the differences found in their personality characteristics and their contacts with the Counseling Bureau. That is, the significant personality differences between women and men Nongraduates were generally similar to those found between the women and men Graduates. Thus, on the one hand, the characteristics descriptive of the men Nongraduates would seem to be such that non-persistence would be hypothesized to occur. On the other hand, the characteristics of women Nongraduates would seem to lead to a prediction of persistence.

The significant scale and score differences found in this study were consistent across the male ability groups--both Graduate and Nongraduate, and consistent across the female ability groups--both Graduate and Nongraduate. That is, the men, by and large, had higher scores on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9; lower scores on Scales L and K; and both higher and lower scores on Scale 10. The women, by and large, had higher scores on Scales L, K, 6, and 10, and lower scores on Scales F, 1, 2, 3, 4, 5, 7, 8, and 9. Of course, the relevant descriptive adjectives or characteristics in this investigation varied according to which female and male Graduate (or Nongraduate) ability groups were being compared.

However, fewer differences were found between High ability men versus High, Middle, and Low ability women than were found between Middle and Low ability men versus High, Middle, and Low ability women. This was true for both the Graduates and Nongraduates.

Little or nothing exists in the literature to explain the differences found between women and men Graduates, as well as between women and men Nongraduates. No studies have been done comparing women and men Graduates or comparing women and men Nongraduates. By and large, the research which has been conducted has explored within sex differences, that is, between women persisters and nonpersisters (or achievers and non-achievers) or between men persisters and nonpersisters (or achievers and non-achievers). Interestingly enough, the characteristics found to be descriptive of persisters in the studies reviewed in Chapter II are generally more similar to the characteristics or adjectives associated with the significant MMPI scale and score results for both the women Graduates and Nongraduates in the current investigation. On the other hand, the characteristics found to be descriptive of nonpersisters in previous studies are generally more similar to the characteristics or adjectives associated with the significant MMPI scale and score results for both the men Graduates and Nongraduates in the current investigation.

The question still remains--why should the women who, from this study, appear to be more adjusted, and to have more characteristics which would contribute to more effectiveness in living and in academic pursuits graduate in fewer numbers and withdraw in larger numbers than the men who appear to be less well adjusted and to have more characteristics which would interfere with effectiveness in living and in academic pursuits.

One hypothesis is that something exists within the environment of the institution as well as within the culture or society at large which counterbalances these personality characteristics of the women and men. Perhaps the institutional as well as the social expectancies and reward systems were such that the characteristics of the men were being reinforced or tempered, at least in terms of persistence to a degree; and perhaps the expectancies, demands, and constraints of the environment were not sufficiently supportive and elicitive of the womens' potential for work toward a degree. There is need for research to answer this question. Such research would need to take into account the dynamics of the educational and social structures and the phenomenological field of the individual operating in these structures.

For example, one of the themes running through the adjectives descriptive of the men was their tendency toward impulsiveness, nonconformity, and rebelliousness. Perhaps these kinds of characteristics led to a lower level of achievement (lower grades and fewer honors) among the men. However, perhaps the high 5 as well as high 7 scores in combination with institutional and societal expectancies for men to acquire college degrees helped to control or temper some of these impulsive behaviors so that the men could at least persist to a degree. The men also gave evidence of depression, unhappiness, and tension, as well as lower self-esteem and ego-strength. Perhaps the pull or conflict between impulsiveness and nonconformity, on the one hand, and their own personal controls as well as the "controlling" expectations of the institution and society to get a degree contributed to this tension and depression as well as lowered self-esteem. Perhaps, too, these kinds of pressures and problems were one of the reasons why it took the men longer to acquire a degree and also why more of them had contact with the Counseling Bureau.

As for the women, one of the themes running through the adjectives characteristic of the women was their tendency toward responsible behavior, following rules and regulations, and conformity. Perhaps these kinds of characteristics led to a higher level of achievement (higher grades and honors) in that the women were fulfilling institutional rules, regulations, and expectations as regards study, completion of assignments, achievement, etc. However, on the other hand, women were perhaps conforming to societal (as well as institutional) expectations (however invalid and biased such expectations may be) that women do not need college degrees, since they are going to (and are expected to) get married anyway. Thus, the lower graduation rate, but higher achievement of the women. The women also gave evidence of being relatively happy, cheerful, relaxed, and free of tension as well as of having high self-esteem and ego-strength and the ability to handle their own problems. Such characteristics perhaps also contributed to more effective motivation and study and thus to a higher achievement level among the women. Perhaps, too, these characteristics are one of the reasons why women graduated sooner than did men, and also why fewer of them had contact with the Counseling Bureau.

The characteristics operating in men Graduates were probably operating in men Nongraduates but in different proportions or degree, e.g., far more impulsiveness and nonconformity and far less control. The same was probably true for the women Nongraduates, e.g., far greater conformity to societal expectations. Such within sex differences in terms of the degree or proportion of the influential characteristics were not explored in this investigation. Further research to explore within the same sex differences of the female Graduates and Nongraduates (as well as male Graduates and Nongraduates) would also shed light on the question of persistence. For example, the question should be explored as to the degree and kinds of personality differences that exist between the women Graduates and Nongraduates of varying ability, and how these interact with the expectancies, demands, and constraints of the educational and social systems to effect college persistence. Clarification would also come about by concentrating on specific ability levels within the same sex, as well as between sexes, e.g., High men Graduates versus High men Nongraduates or Middle men versus Middle women Graduates.

Part of the complexity and confusion of the current results would also be cleared up if MMPI scale pairs with peaks, secondary peaks, and low points were analyzed rather than just means or single scale analyses, as was done in this investigation. The meaningfulness of the MMPI is increased by using a "configural" analyses approach, since a high point on one scale can counteract or reinforce a high point on another scale and so on for various combinations of scale and scores. Such an approach would clarify the meaning of the current results, since some of the scale adjectives were in conflict. It would have been more meaningful and valuable, as well as less frustrating, to evaluate these results in such a "patterned" or "configural" way rather than in the "atomistic" fashion that was utilized.

Previous work with the MMPI has underscored the necessity of considering patterns and configurations of scores as well as the absolute evaluations on any given scale in using the MMPI (Gough & Pemberton, 1952; Guthrie, 1950b). While the information about individual scales may be useful in some instances, the behavior that is to be understood or predicted is usually too complex to be measured by a single scale. When a characteristic is so severe as to be disabling, as is often the case in the deviate person, it usually stands out clearly. On the other hand, when a characteristic merely modifies a response or action, it may be very difficult to isolate or interpret. Thus, what appears to be a relatively simple characteristic, such as underachievement or nonpersistence in academic work, is apparently not related to one scale, or even a combination of scales, but may be related to a number of different patterns of scales. Guthrie (1952) has noted that psychological tests such as the MMPI

> which yielded scores on more than one trait present problems of interpretation since there is usually no simple formula for combining the series of scores to make interpretive judgments. A 'one-trait-at-a-time' technique of interpretation is inadequate, for this discrete approach fails to take into account the fact that the interpretation of one score may be modified by the score on a second scale (p. 145).

Since the original publication of the MMPI, a general trend in techniques of interpretation toward an emphasis on the total pattern of the profile and away from elevations of single scales has taken place. Hathaway and Meehl (1951b) have said current research by users of the MMPI emphasizes that the shape of the total profile is of greater significance than the elevation of single scores; and to get the most out of this instrument, the data must be treated in a configural rather than an atomistic fashion. It is not the individual scale that must be evaluated in using the MMPI profile, but rather the pattern afforded by the whole group of scales including the validity indicators.

In configural analysis every possible relationship is appraised for its differentiating power. Thus scales of intermediate elevation can be as predictive as those of maximum elevation when the relationships between them and the other scales are scrutinized. An indefinitely large number of patterns is possible. A few researchers (Drake & Oeotting, 1959; Hathaway & Meehl, 1951b) have developed various coding systems to make the patterns more useful. For instance, Hathaway and Meehl developed a two-digit coding system. Although this method discarded much of the information, Hathaway and Meehl felt that it did reduce the possible number of different profiles to a practical size. Even the simplist kind of pattern analysis has been observed to yield far more meaningful information than single scale analysis. This investigation could have benefited from using this approach, since differences were found on all the MMPI scales, but there was no definite way of knowing how these significant individual scale and score differences were interacting with each other.

What are the implications of these results? If institutional and societal expectations and reward systems are interacting in the manner hypothesized above with these personality characteristics descriptive of women and men, then these results have implications as regards the college environment. It would appear that institutions may be differentially rewarding and stifling desirable characteristics (as well as undesirable characteristics) in women and men students? If this is the case, then there is need for educational reform and the development of an educational system more equally responsive to the characteristics of both women and men at all ability levels allowing more of them to become educated and effective participants in the community and society. Educational reform is needed in a variety of areas including instruction and methods of teaching, faculty attitudes, student personnel and counseling services as well as the establishment of programs to combat invalid and unrealistic attitudes and biases about sex roles and expectations.

D. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, differences were found to exist between women and men Graduates of High, Middle, and Low ability, and between women and men Nongraduates of High, Middle, and Low ability in their persistence in college, pattern of attendance before graduation or withdrawal, colleges of enrollment, major fields of study, degree earned, grade point averages, honors earned, and in their contact with the Student Counseling Bureau.

Differences in personality characteristics also were found to exist between women and men Graduates of High, Middle, and Low ability, and between women and men Nongraduates of High, Middle, and Low ability.

Further research which would (1) utilize a configural analyses approach of MMPI scale pairs and scores; (2) explore differences within the same sex and within the same specific ability level, or between sexes within the same specific ability level; and (3) relate these to the educational and social environments of the students would help to clarify the topic of personality characteristics and college persistence.

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APPENDIX A

Appendix A

Table 1

Number of Women and Men Who Enrolled in the College of Liberal Arts (CLA) (University of Minnesota) as New Freshmen During the Fall Quarter of the Years 1950 through 1958[a]

Year Entered	New CLA Freshmen Women f	 Men f	 Total f
1950, Fall	609	949	1558
1951, Fall	588	921	1509
1952, Fall	642	924	1566
1953, Fall	610	973	1583
1954, Fall	665	1155	1820
1955, Fall	750	1350	2100
1956, Fall	820	1378	2198
1957, Fall	808	1296	2104
1958, Fall	882	1465	2347
Total	6,374	10,411	16,785

[a] Information from Recorder's Office, University of Minnesota Office of Admissions and Records

Appendix A

Table 2

Edition of the ACE Administered in the Minnesota State-Wide Testing Program: 1949 Through 1957[a]

Date of Administration	Yr. in H.S.	ACE Edition
January 1949 - 1952	Senior	1947
January 1953	Senior	1947
January 1953 - 1957	Senior	1947

[a] Adapted from Berdie et. al. (1962a, pp. 12-13).

Appendix A

Table 3

American Council on Education Psychological Examination (ACE) Mean, Median, Standard Deviation, and Variance for College of Liberal Arts Women and Men Freshmen

CLA Freshmen[a]	ACE				
	N	Mean[c]	Median[c]	SD[c]	S^2
Women	4633	66.99[b]	72.36	27.94	780.64
Men	5658	65.89[b]	72.31	26.31	692.22

[a] Entered CLA (University of Minnesota) as new freshmen in the fall quarter of the years 1950 through 1958.

[b] t = not statistically significant.

[c] ACE Percentile Scores

Appendix A

Table ,

High School Percentile Rank (HSR)
Mean, Median, Standard Deviation, and Variance
for College of Liberal Arts Women and Men Freshmen

CLA Freshmen[a]	HSR				
	N	Mean	Median	SD	s^2
Women	4633	82.61[b]	87.72	16.18	261.79
Men	5658	69.58[b]	72.61	21.69	470.46

[a] Entered CLA (University of Minnesota) as new freshmen in the fall quarter of the years 1950 through 1958.

[b] $t = 13.91$ df = 10,289 $p < .0001$

Appendix A

Table 5

ACE and HSR Cutoff Points (Percentiles) Used to Define High, Middle and Low Ability Groups

Ability Groups	ACE	HSR
High	≥ 80	≥ 90
Middle	≥ 50	50-89
	50-79	≥ 50
Low	≤ 49	≤ 49
	≤ 49	≥ 1
	≥ 1	≤ 49

Appendix A

Table 6

Frequency and Percentage of Women and Men Classified as High, Middle and Low Ability

Ability	Women		Men		Total	
	f	%	f	%	f	%
High	1,267	27.3	830	14.7	2,097	20.4
Middle	1,819	39.3	2,409	42.6	4,228	41.1
Low	1,577	33.4	2,419	42.8	3,966	38.5
Total	4,633	100.0	5,658	100.1	10,291	100.0

Table 7

Frequency and Percentage of ACE Percentile Scores for
CLA Freshman Women and Men of Varying Ability

CLA Freshmen		ACE Percentile										
		00-09		10-19		20-29		30-39		40-49		50-59
		f	%	f	%	f	%	f	%	f	%	f	%
WOMEN	Hi	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Mid	0	0.0	1	0.1	0	0.0	2	0.1	0	0.0	216	11.9
	Lo	80	5.2	282	18.2	273	17.6	576	37.2	177	11.4	20	1.3
Subtotal		80	1.7	283	6.1	273	5.9	578	12.5	177	3.8	236	5.1
MEN	Hi	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0	0	0.0
	Mid	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	248	10.3
	Lo	65	2.7	226	9.3	323	13.4	680	28.1	275	11.4	108	4.5
Subtotal		65	1.1	226	4.0	324	5.7	680	12.0	275	4.9	356	6.3
Total		145	1.4	509	4.9	597	5.8	1258	12.2	452	4.4	592	5.8

Table continued

Table 7 continued

CLA Freshmen		ACE Percentile									
		60-69		70-79		80-89		90-100		Total	
		f	%	f	%	f	%	f	%	f	%
WOMEN	Hi	0	0.0	0	0.0	489	38.5	778	61.4	1267	27.3
	Mid	470	25.8	441	24.2	339	18.6	350	19.2	1819	39.3
	Lo	43	2.8	38	2.5	31	2.0	27	1.7	1547	33.4
Subtotal		513	11.1	479	10.4	859	18.5	1155	24.9	4633	100.0
MEN	Hi	0	0.0	0	0.0	270	32.5	559	67.3	830	14.7
	Mid	459	19.1	461	19.1	568	23.6	673	27.9	2409	42.6
	Lo	208	8.6	175	7.2	226	9.3	133	5.5	2419	42.8
Subtotal		667	11.8	636	11.2	1064	18.8	1365	24.1	5658	100.0
Total		1180	11.5	1116	10.8	1922	18.7	2520	24.5	10,291	100.0

Appendix A

Table 8

Frequency and Percentage of High School Ranks for CLA Freshman Women and Men of Varying Ability

CLA Freshmen	HSR											
	00-09		10-19		20-29		30-39		40-49		50-59	
	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN Hi	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Mid	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	131	7.2
Lo	4	0.0	8	0.5	31	2.0	61	3.9	105	6.8	101	6.5
Subtotal	4	0.1	8	0.2	31	0.7	61	1.3	105	2.3	233	5.0
MEN Hi	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Mid	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	390	16.2
Lo	30	1.2	96	4.0	169	7.0	308	12.7	480	19.8	259	10.7
Subtotal	30	0.5	96	1.7	169	3.0	309	5.5	480	8.5	649	11.5
Total	34	0.3	104	1.0	200	1.9	370	3.6	585	5.7	882	8.6

Table continued

Table 8 continued

CLA Freshmen	HSR									
	60-69		70-79		80-89		90-100		Total	
	f	%	f	%	f	%	f	%	f	%
WOMEN Hi	0	0.0	1	0.1	0	0.0	1265	99.8	1267	27.3
Mid	231	12.7	357	19.6	603	33.2	497	27.3	1819	39.3
Lo	226	14.6	307	19.8	349	22.6	355	22.9	1547	33.4
Subtotal	457	9.9	665	14.4	952	20.5	2117	45.7	4633	100.0
MEN Hi	0	0.0	3	0.4	3	0.4	824	99.3	830	14.7
Mid	505	21.0	571	23.7	678	28.1	264	11.0	2409	42.6
Lo	344	14.2	303	12.5	274	11.3	165	6.8	2419	42.8
Subtotal	849	15.0	877	15.5	955	16.9	1253	22.1	5658	100.0
Total	1306	23.1	1542	15.0	1907	33.7	3370	59.6	10291	100.0

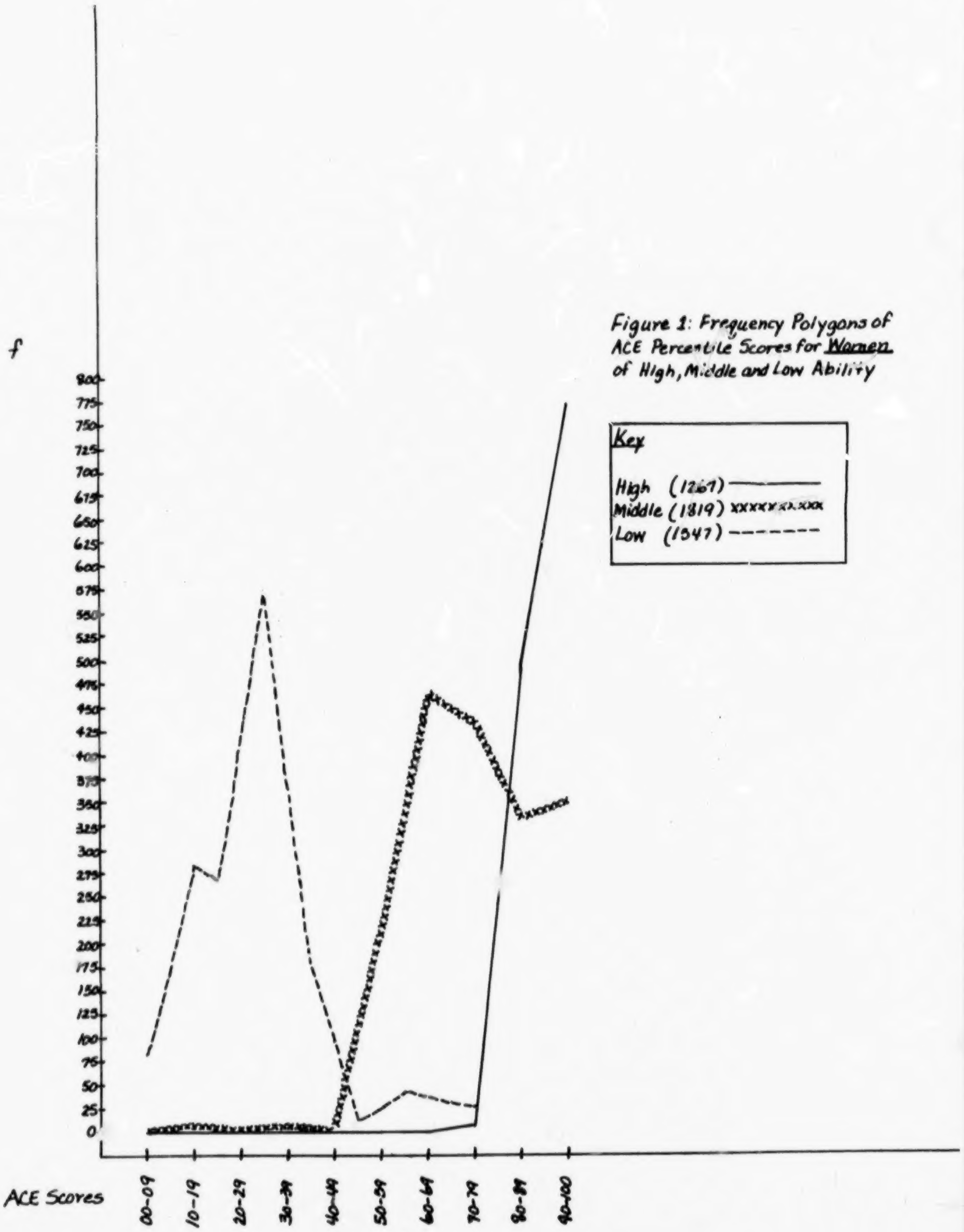
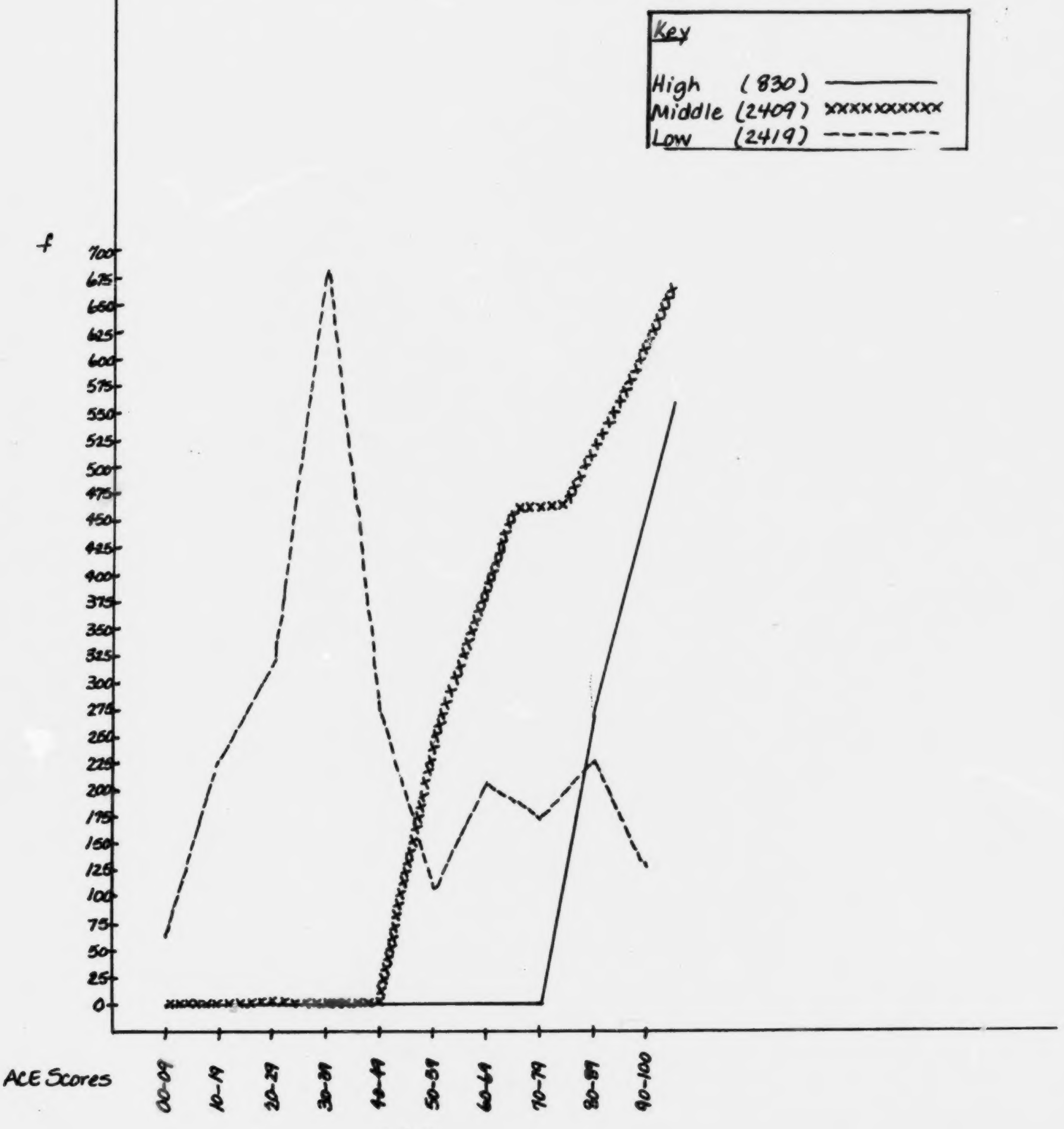


Figure 1: Frequency Polygons of ACE Percentile Scores for Women of High, Middle and Low Ability

Figure 2: Frequency Polygons of ACE Percentile Scores for Men of High, Middle, and Low Ability



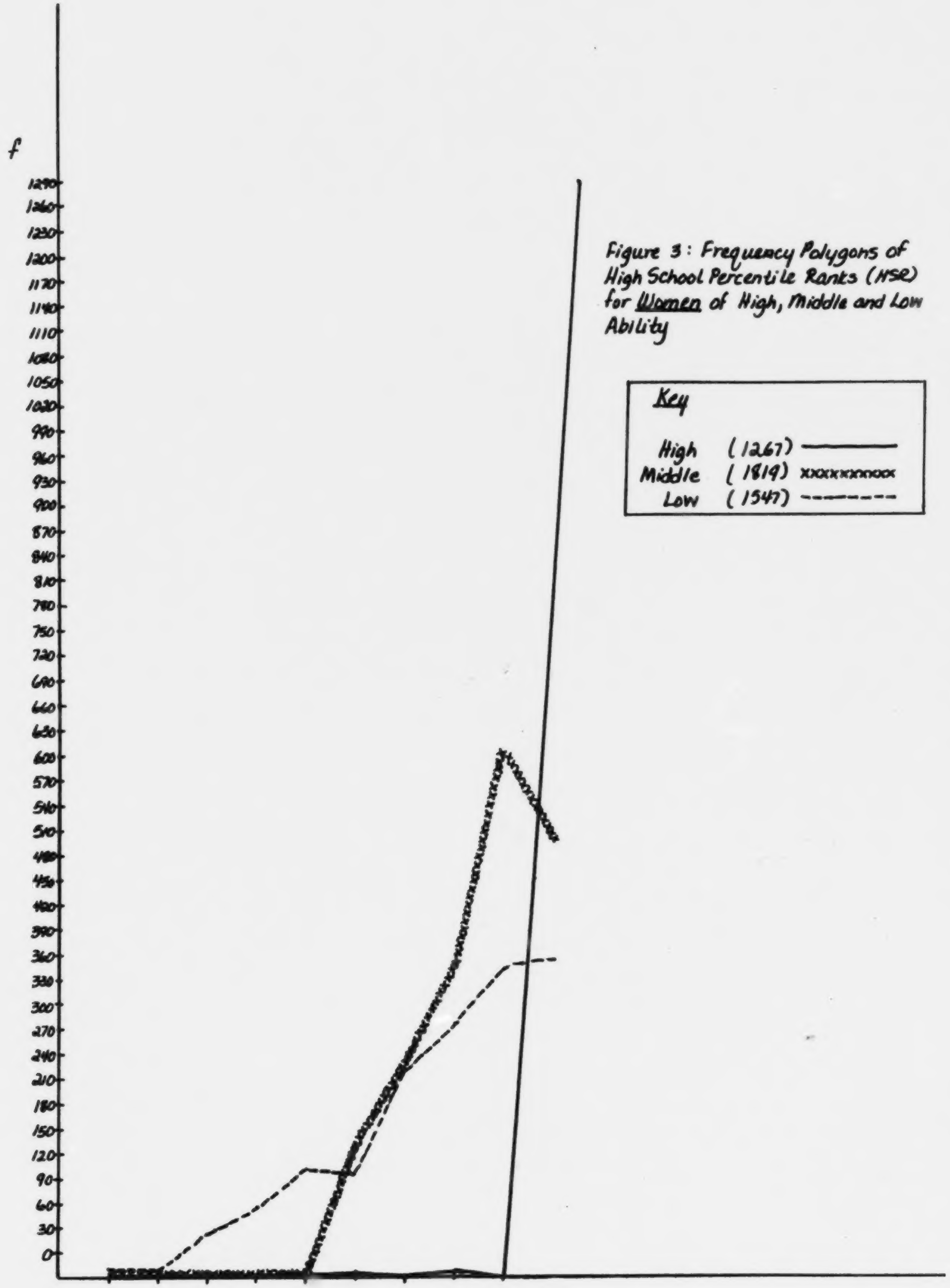


Figure 3: Frequency Polygons of High School Percentile Ranks (HSR) for *Women* of High, Middle and Low Ability

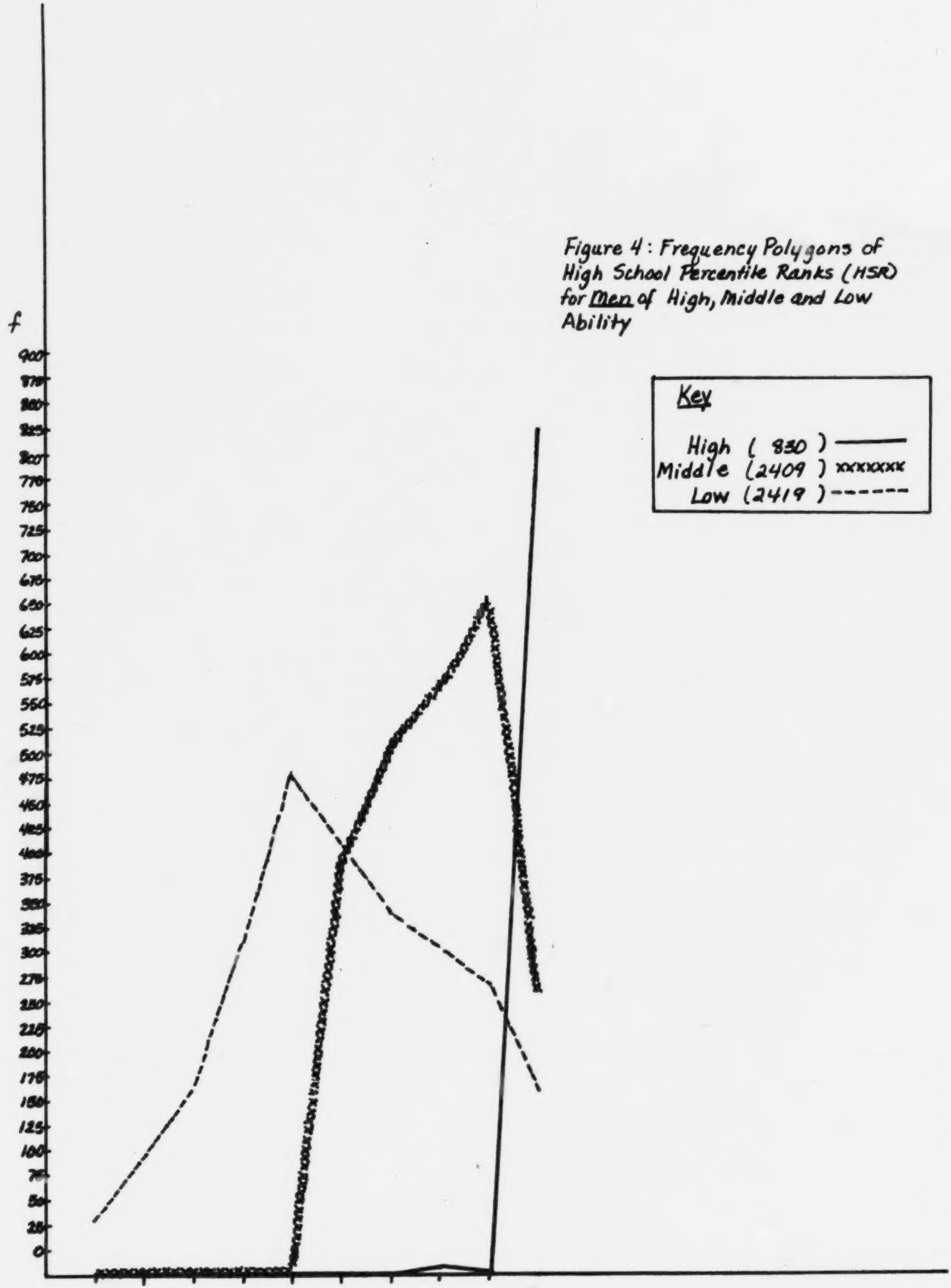


Figure 4: Frequency Polygons of High School Percentile Ranks (HSR) for Men of High, Middle and Low Ability

Appendix A

Table 9

ACE and HSR Mean and Standard Deviation Scores for CLA Freshmen[a] Women and Men of Varying Ability

Ability	f	%	ACE Mean	ACE SD	HSR Mean	HSR SD
Women - High	1267	27.3	92.43	6.32	95.92	3.44
Middle	1819	39.3	75.17	14.36	80.94	12.60
Low	1547	33.4	33.26	17.89	73.66	18.96
Subtotal	4,633	100.0				
Men - High	830	14.7	93.25	6.40	95.56	3.48
Middle	2409	42.6	78.78	14.71	74.33	12.87
Low	2419	42.8	46.26	24.18	55.92	22.14
Subtotal	5,658	100.0				
Total	10,291	100.0				

[a] Entered CLA (University of Minnesota) as new freshmen in the fall quarter of the years 1950 through 1958.

Appendix A

Table 10

Number of Years Available Within Which to Graduate for CLA Freshmen Who Entered 1950-58

Year of Entry	Number of Years		
	Standard	Additional	Total
1950	4	15	19
1951	4	14	18
1952	4	13	17
1953	4	12	16
1954	4	11	15
1955	4	10	14
1956	4	9	13
1957	4	8	12
1958	4	7	11

Appendix A

Table 11

Frequency and Percentage of Women and Men Who Completed the MMPI During Freshman Orientation

Group	Completed MMPI f	 %
Women (N=4,633)	3,197	69.0
Men (N=5,658)	3,295	58.2
Total (N=10,291)	6,492	63.1

NOTE: These figures are actually for those women and men who completed the MMPI and had valid profiles.

APPENDIX B

CODING INSTRUCTIONS FOR IBM DATA CARD NUMBER ONE
(Persistence and Ability Study--Patricia S. Faunce)

COLUMNS	ITEM	CODE PUNCH
1--5	Identification Number (five-digit)	00,001 -- 00,999 (M Hi) 07,000 -- 08,999 (F Hi) 01,000 -- 03,999 (M Mid) 09,000 -- 11,999 (F Mid) 04,000 -- 06,999 (M Lo) 12,000 -- 14,999 (F Lo)
6-15	Last Name	As many letters of last name as will fit.
16	First Initial	First letter of first name.
17	Middle Initial	First letter of middle name.
18	Year Entered U. of Minn. (CLA)	1950 = 0 1953 = 3 1956 = 6 1951 = 1 1954 = 4 1957 = 7 1952 = 2 1955 = 5 1958 = 8
19	Graduate or Nongraduate	Graduate = 1; Nongraduate = 2
20	Sex	Female = 1; Male = 2
21	Ability	High = 1; Middle = 2; Low = 3
22-23	Sex, Ability, Grad-Nongrad	Female High Grad. = 11 Male High Grad. = 17 Female High Nongrad. = 12 Male High Nongrad. = 18 Female Middle Grad. = 13 Male Middle Grad. = 19 Female Middle Nongrad. = 14 Male Middle Nongrad. = 20 Female Low Grad. = 15 Male Low Grad. = 21 Female Low Nongrad. = 16 Male Low Nongrad. = 22
24-26	ACE Percentile	As listed --001 through 100

CODING INSTRUCTIONS FOR IBM CARD NUMBER ONE -- cont'd.
(Persistence and Ability Study--Patricia S. Faunce)

COLUMNS	ITEM	CODE PUNCH
27-29	HSR Percentile	As listed --001 through 100
30-32	Grade Point Average (GPA)	Cumulative GPA to two decimal places.
33-34	Number of Quarters Attended School	Actual number of quarters attended (00 - 99)
35-37	Major Field	Coded Majors (001 - 999); see list of coded majors.
38-39	Degree Obtained	Coded Degrees (01 - 99); see list of coded degrees.
40	Honors at Graduation	Summa cum laude = 1 Magna cum Laude = 2 Cum Laude = 3 High Distinction = 4 Distinction = 5 Double Honors = 6 Grad No Honors = 7 Nongraduate = 8
41	Contact with SCB	Contact (Have Case Number) = 1; No Contact (No Case Number) = 2
42-67	MMPI Scores (13 Scales)	Raw Scores (K - corrected). Scales L, F, K, and 1 thru 10
68-69	College in which Enrolled	Coded Colleges (01 - 99); see list of coded colleges.
80	Card Number One	Card Number One = 1

Appendix B

Table 12

MMPI Raw Cutting Scores Used for the T Score Categories of High, Middle, and Low for the Men

MMPI Scale	Raw Scores (Men) and T Score Categories		
	High 70+	Middle 50-69	Low ≤ 49
L	10+	4 - 9	< 3
F	12+	3 - 11	< 2
K	23+	13 - 22	< 12
1 (Hs)	19+	12 - 18	< 11
2 (D)	25+	17 - 24	< 16
3 (Hy)	28+	17 - 27	< 16
4 (Pd)	28+	19 - 27	< 18
5 (Mf)	31+	21 - 30	< 20
6 (Pa)	15+	8 - 14	< 7
7 (Pt)	33+	23 - 32	< 22
8 (Sc)	33+	22 - 32	< 21
9 (Ma)	25+	17 - 24	< 16
10 (Si)	43+	25 - 42	< 24

Appendix B

Table 13

MMPI Raw Cutting Scores Used for the T Score Categories of High, Middle, and Low for the Women

MMPI Scale	Raw Scores (Women) and T Score Categories		
	High 70+	Middle 50-69	Low ≤49
L	10+	4 - 9	< 3
F	12+	3 - 11	< 2
K	23+	13 - 22	<12
1 (Hs)	23+	13 - 22	<12
2 (D)	30+	20 - 29	<19
3 (Hy)	30+	19 - 29	<18
4 (Pd)	28+	19 - 27	<18
5 (Mf)[a]	<27	36 - 28	37+
6 (Pa)	15+	8 - 14	< 7
7 (Pt)	38+	25 - 37	< 24
8 (Sc)	36+	23 - 35	< 22
9 (Ma)	25+	17 - 24	< 16
10 (Si)	43+	25 - 42	< 24

[a] For women, Scale 5 is scored in the opposite direction from the other scales.

PERSISTENCE AND ABILITY STUDY - Patricia S. Faunce

CARD ONE

1 2 3 4 5	ID Number
6 7 8 9 10 11 12 13 14 15	Last Name
16	First Initial
17	Middle Initial
18	Year Entered UM (CLA)
19	Graduate-Nongraduate
20	Sex
21	Ability
22 23	Sex, Ability, Grad-Nongrad
24 25 26	ACE Percentile
27 28 29	HSR Percentile
30 31 32	GPA
33 34	# of Qtrs Attended School
35 36 37	Major Field
38 39	Degree Obtained
40	Honors at Graduation

41	Contact with SCB	
42 43	L	MMPI
44 45	F	
46 47	K	
48 49	1	
50 51	2	
52 53	3	
54 55	4	
56 57	5	
58 59	6	
60 61	7	
62 63	8	
64 65	9	
66 67	0	
68 69	College	
70 71 72 73 74 75 76 77 78 79		
80	Card Number One	

APPENDIX C

Appendix C

Table 14

Persistence of High, Middle, and Low Ability Women at the University of Minnesota: Frequency and Percentage

Year of Entry	Women: Persistence and Ability																	
	Graduated								Did Not Graduate									
	High		Middle		Low		Subtotal		High		Middle		Low		Subtotal		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1950	48	9.1	102	19.4	79	15.0	229	43.5	57	10.8	105	19.9	136	25.8	298	56.5	527	11.4
1951	70	13.3	94	17.9	92	17.5	256	48.7	37	7.0	126	24.0	107	20.3	270	51.3	526	11.4
1952	72	12.4	122	21.0	82	14.1	276	47.6	47	8.1	129	22.2	128	22.1	304	52.4	580	12.5
1953	75	13.6	104	18.9	84	15.2	263	47.7	45	8.2	123	22.3	120	2.18	288	52.3	551	11.9
1954	91	15.0	105	17.3	97	16.0	293	48.2	44	7.2	141	23.2	130	21.4	315	51.8	608	13.1
1955	93	14.7	111	17.5	74	11.7	278	43.9	56	8.8	154	24.3	145	22.9	355	56.1	633	13.7
1956	86	13.4	107	16.7	65	10.2	258	40.3	71	11.1	164	25.6	147	23.0	382	59.7	640	13.8
1957	111	60.0	0	0.0[a]	0	0.0[a]	111	60.0	74	40.0	0	0.0[a]	0	0.0[a]	74	40.0	185	1.5
1958	111	29.0	66	17.2	28	7.3	205	53.5	79	20.6	66	17.2	33	8.6	178	46.5	383	5.4
Total	757	16.3	811	17.5	601	13.0	2196	46.8	510	11.0	1008	21.8	946	20.4	2464	53.2	4633	100.0

[a] A Total list a new entering freshmen in 1957 could not be located; only a list of high ability students.

Appendix C

Table 15

Persistence of High, Middle, and Low Ability Men at the University of Minnesota: Frequency and Percentage

Year of Entry	Men: Persistence and Ability																Total	
	Graduated								Did Not Graduate									
	High		Middle		Low		Subtotal		High		Middle		Low		Subtotal			
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1950	76	11.0	203	29.3	166	24.0	445	64.2	19	2.7	100	14.4	129	18.6	248	35.8	693	12.2
1951	88	12.5	184	26.1	159	22.6	431	61.2	18	2.6	107	15.2	148	21.0	273	38.8	704	12.4
1952	65	9.2	191	26.9	141	19.9	397	56.0	17	2.4	116	16.4	179	25.2	312	44.0	709	12.5
1953	78	10.6	174	23.5	138	18.7	390	52.8	13	1.8	154	20.8	182	24.6	349	47.2	739	13.1
1954	77	9.1	196	23.3	197	23.4	470	55.8	27	3.2	140	16.6	206	24.4	373	44.2	843	14.9
1955	64	7.2	194	21.8	159	17.9	417	46.9	26	2.9	176	19.8	270	30.4	472	53.1	889	15.7
1956	65	9.4	184	26.6	121	17.5	370	53.4	17	2.5	134	19.3	172	24.8	323	46.6	693	12.2
1957	59	71.1	0	0.0[a]	0	0.0[a]	59	71.1	24	28.9	0	0.0[a]	0	0.0[a]	24	28.9	83	1.5
1958	66	21.6	82	26.9	24	7.9	172	56.4	31	10.2	74	24.3	28	9.2	133	43.6	305	5.4
Total	638	11.3	1408	24.9	1105	19.5	3151	55.7	192	3.4	1001	17.7	1314	23.2	2507	44.3	5658	100.0

[a] A total list of new entering fall freshmen in 1957 could not be located; only a list of high ability students.

Appendix C

Table 16

ACE Mean and Standard Deviation Percentile Scores for *Women* and *Men* Graduates and Nongraduates of Varying Ability

Group		ACE		
		N	Mean	SD
WOMEN GRAD	Hi	757	92.58	6.32
	Mid	811	74.77	13.92
	Lo	601	31.42	16.06
MEN GRAD	Hi	638	93.74	5.83
	Mid	1408	78.83	14.85
	Lo	1105	43.97	23.42
WOMEN NONGRAD	Hi	510	92.23	6.31
	Mid	1008	75.49	14.71
	Lo	946	34.43	18.88
MEN NONGRAD	Hi	192	91.63	7.79
	Mid	1001	78.71	14.53
	Lo	1314	48.19	24.66

Appendix C

Table 17

HSR Mean and Standard Deviation for Women and Men Graduates and Nongraduates of Varying Ability

Group		HSR N	Mean	SD
WOMEN GRAD	Hi	757	96.23	3.55
	Mid	811	84.05	11.76
	Lo	601	78.87	17.44
MEN GRAD	Hi	638	95.77	3.40
	Mid	1408	76.32	12.61
	Lo	1105	60.60	22.41
WOMEN NONGRAD	Hi	510	95.46	3.23
	Mid	1008	78.44	12.70
	Lo	946	70.35	19.16
MEN NONGRAD	Hi	192	94.87	3.67
	Mid	1001	71.53	12.72
	Lo	1314	51.99	21.14

Appendix C

Table 18

Frequency and Percentage of Quarters in Attendance at the University of Minnesota for the Women and Men Graduates and Nongraduates of Varying Ability

Group		Number of Quarters														
		0			1			2			3			4		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi															
	Mid															
	Lo															
Subtotal																
WOMEN NONGRAD	Hi	13	2.5	2.5	33	6.5	9.0	39	7.6	16.6	108	21.2	37.8	25	4.9	42.7
	Mid	50	5.0	5.0	108	10.7	15.7	85	8.4	24.1	200	19.8	43.9	67	6.6	50.5
	Lo	58	6.1	6.1	94	9.9	16.0	78	8.2	24.2	219	23.2	47.4	80	8.5	55.9
Subtotal		121	4.9	4.9	235	9.5	14.4	202	8.2	22.6	527	21.4	44.0	172	7.0	51.0
MEN GRAD	Hi															
	Mid															
	Lo															
Subtotal																
MEN NONGRAD	Hi	8	4.2	4.2	14	7.3	11.5	10	5.2	16.7	34	17.7	34.4	13	6.8	41.2
	Mid	48	4.8	4.8	118	11.8	16.6	72	7.2	23.8	153	15.3	39.1	73	7.3	46.4
	Lo	97	7.4	7.4	158	12.0	19.4	110	8.4	27.8	169	12.9	40.7	112	8.5	49.2
Subtotal		153	6.1	6.1	290	11.6	17.7	192	7.7	25.4	356	14.2	39.6	198	7.9	47.5

Table continued

Table 18 continued

Group		Number of Quarters														
		5			6			7			8			9		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi				-	-	-				1	0.1	0.1	7	0.9	1.0
	Mid				-	-	-				-	-	-	6	0.7	0.7
	Lo				1	0.2	0.2				-	-	0.2	5	0.8	1.0
Subtotal					1	0.0	0.0				1	0.0	0.0	18	0.8	0.8
WOMEN NONGRAD	Hi	25	4.9	47.6	88	17.3	64.9	44	8.6	74.5	29	5.7	79.2	22	4.3	83.5
	Mid	57	5.7	56.2	146	14.5	70.7	80	7.9	78.6	46	4.6	83.2	56	5.6	88.8
	Lo	48	5.1	61.0	148	15.6	76.6	67	7.1	83.7	39	4.1	87.8	34	3.6	91.4
Subtotal		130	5.3	56.3	382	15.5	71.8	191	7.8	79.6	114	4.6	84.2	112	4.5	88.7
MEN GRAD	Hi				-	-	-	-	-	-	-	-	-	3	0.5	0.5
	Mid				-	-	-	-	-	-	1	0.1	0.1	5	0.4	0.5
	Lo				1	0.1	0.1	1	0.1	0.2	-	-	0.2	-	-	0.2
Subtotal					1	0.0	0.0	1	0.0	0.0	1	0.0	0.0	8	0.3	0.3
MEN NONGRAD	Hi	7	3.6	44.8	14	7.3	52.1	8	4.2	56.3	12	6.3	62.6	17	8.9	71.5
	Mid	60	6.0	52.4	87	8.7	61.1	82	8.2	69.3	57	5.7	75.0	51	5.1	80.1
	Lo	85	6.5	55.7	123	9.4	65.1	103	7.8	72.9	76	5.8	78.7	74	5.6	84.3
Subtotal		152	6.1	53.6	224	8.9	62.5	193	7.7	70.2	145	5.8	76.0	142	5.7	81.7

Table continued

Appendix C

Table 18 continued

Group		Number of Quarters														
		10			11			12			13			14		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi	41	5.4	6.4	53	7.0	13.4	298	39.4	52.8	181	23.9	76.7	58	7.7	84.4
	Mid	13	1.6	2.3	49	6.0	8.3	285	35.1	43.4	229	28.2	71.6	90	11.1	82.7
	Lo	3	0.5	1.5	17	2.8	4.3	187	31.1	35.4	168	28.0	63.4	92	15.3	78.7
Subtotal		57	2.6	3.4	119	5.5	8.9	770	35.5	44.4	578	26.6	71.0	240	11.1	82.1
WOMEN NONGRAD	Hi	12	2.4	85.9	18	3.5	89.4	11	2.2	91.6	15	2.9	94.5	9	1.8	96.3
	Mid	24	2.4	91.2	18	1.8	93.0	17	1.7	94.7	19	1.9	96.6	14	1.4	98.0
	Lo	30	3.2	94.6	14	1.5	96.1	9	1.0	97.1	6	0.6	97.7	10	1.1	98.8
Subtotal		66	2.7	91.4	50	2.0	93.4	37	1.5	94.9	40	1.6	96.5	33	1.3	97.8
MEN GRAD	Hi	13	2.0	2.5	37	5.8	8.3	231	36.2	44.5	165	25.9	70.4	67	10.5	80.9
	Mid	11	0.8	1.3	54	3.8	5.1	425	30.2	35.3	363	25.8	61.1	200	14.2	75.3
	Lo	2	0.2	0.4	15	1.4	1.8	241	21.8	23.6	281	25.4	49.0	178	16.1	65.1
Subtotal		26	0.8	1.1	106	3.4	4.5	897	28.5	33.0	809	25.7	58.7	445	14.1	72.8
MEN NONGRAD	Hi	14	7.3	78.8	8	4.2	83.0	5	2.6	85.6	4	2.1	87.7	9	4.7	92.4
	Mid	35	3.5	83.6	27	2.7	86.3	38	3.8	90.1	26	2.6	92.7	28	2.8	95.5
	Lo	45	3.4	87.7	31	2.4	90.1	35	2.7	92.8	19	1.4	94.2	20	1.5	95.7
Subtotal		94	3.7	85.4	66	2.6	88.0	78	3.1	91.1	49	2.0	93.1	57	2.3	95.4

Table continued

Table 18 continued

Group		Number of Quarters														
		15			16			17			18			19		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi	36	4.8	89.2	64	8.5	97.7	12	1.6	99.3	4	0.5	99.8	2	0.3	100.1
	Mid	75	9.2	91.9	32	3.9	95.8	12	1.5	97.3	12	1.5	98.8	4	0.5	99.3
	Lo	55	9.2	87.9	41	6.8	94.7	14	2.3	97.0	9	1.5	98.5	4	0.7	99.2
Subtotal		166	7.7	89.8	137	6.3	96.1	38	1.8	97.9	25	1.2	99.1	10	0.5	99.6
WOMEN NONGRAD	Hi	9	1.8	98.1	7	1.4	99.5	2	0.4	99.9	-	-	99.9	1	0.2	100.1
	Mid	11	1.1	99.1	6	0.6	99.7	-	-	99.7	2	0.2	99.9	-	-	99.9
	Lo	4	0.4	99.2	3	0.3	99.5	3	0.3	99.8	-	-	99.8	-	-	99.8
Subtotal		24	1.0	98.8	16	0.6	99.4	5	0.2	99.6	2	0.1	99.7	1	0.0	99.7
MEN GRAD	Hi	37	5.8	86.7	29	4.5	91.2	16	2.5	93.7	17	2.7	96.4	8	1.3	97.7
	Mid	130	9.2	84.5	66	4.7	89.2	46	3.3	92.5	45	3.2	95.7	26	1.8	97.5
	Lo	148	13.4	78.5	80	7.2	85.7	46	4.2	89.9	42	3.8	93.7	23	2.1	95.8
Subtotal		315	10.0	82.8	175	5.6	88.4	108	3.4	91.8	104	3.3	95.1	57	1.8	96.9
MEM NONGRAD	Hi	2	1.0	93.4	4	2.1	95.5	4	2.1	97.6	1	0.5	98.1	1	0.5	98.6
	Mid	18	1.8	97.3	7	0.7	98.0	8	0.8	98.8	5	0.5	99.3	2	0.2	99.5
	Lo	20	1.5	97.2	17	1.3	98.5	5	0.4	98.9	8	0.6	99.5	2	0.2	99.7
Subtotal		40	1.6	97.0	28	1.1	98.1	17	0.7	98.8	14	0.6	99.4	5	0.2	99.6

Table continued

Table 18 continued

Group		Number of Quarters														
		20			21			22			23			24		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi	-	-	100.1	-	-	100.1	-	-	100.1	-	-	100.1	-	-	100.1
	Mid	1	0.1	99.4	1	0.1	99.5	1	0.1	99.6	-	-	99.6	-	-	99.6
	Lo	2	0.3	99.5	-	-	99.5	-	-	99.5	1	0.2	99.7	1	0.2	99.9
Subtotal		3	0.1	99.7	1	0.0	99.7	1	0.0	99.7	1	0.0		1	0.0	99.7
WOMEN NONGRAD	Hi				-	-	100.1	-	-	100.1						
	Mid				1	0.1	99.9	-	-	99.9						
	Lo				1	0.1	99.9	1	0.1	100.0						
Subtotal					2	0.1	99.9	1	0.0	99.8						
MEN GRAD	Hi	3	0.5	98.2	7	1.1	99.3	2	0.3	99.6	1	0.2	99.8	-	-	
	Mid	17	1.2	98.7	9	0.6	99.3	-	-	99.3	5	0.4	99.7	1	0.1	99.8
	Lo	17	1.5	97.3	11	1.0	98.3	7	0.6	98.9	3	0.3	99.2	3	0.3	99.5
Subtotal		37	1.2	98.1	27	0.9	99.0	9	0.3	99.3	9	0.3	99.6	4	0.1	99.7
MEN NONGRAD	Hi	2	1.0	99.6	1	0.5	100.1	-	--							
	Mid	3	0.3	99.8	1	0.1	99.9	-	-							
	Lo	2	0.2	99.9	2	0.2	100.1	1	0.1	100.2						
Subtotal		7	0.3	99.9	4	0.2	100.1	1	0.0	100.1						

Table continued

Table 18 continued

Group		Number of Quarters														
		25			26			30			33			45		
		f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %	f	%	Cum %
WOMEN GRAD	Hi															
	Mid															
	Lo															
Subtotal																
WOMEN NONGRAD	Hi													-	-	
	Mid													1	0.1	100.0
	Lo													-	-	100.0
Subtotal														1	0.0	99.8
MEN GRAD	Hi	2	0.3	100.1	-	-		-	-		-	-				
	Mid	3	0.2	100.1	1	0.1	100.1	-	-	100.1	-	-	100.1			
	Lo	2	0.2	99.7	1	0.1	99.8	1	0.1	99.9	1	0.1	100.0			
Subtotal		7	0.2	99.9	2	0.1	100.0	1	0.0	100.0	1	0.0	100.0			
MEN NONGRAD	Hi													-	-	
	Mid													1	0.1	100.0
	Lo													-	-	
Subtotal														1	0.0	100.1

Table continued

Table 18 continued

Group		Number of Quarters 73 f	 %	 Cum %	 NA f	 %	 Cum %	 Total f	 %	 Cum %
WOMEN GRAD	Hi							757	34.9	100.1
	Mid				1	0.1	99.7	811	37.4	99.7
	Lo				1	0.2	100.1	601	27.7	100.1
Subtotal					1	0.1	99.8	2169	100.0	99.8
WOMEN NONGRAD	Hi							510	20.7	100.1
	Mid							1008	40.9	100.0
	Lo							946	38.4	100.0
Subtotal								2464	100.0	99.8
MEN GRAD	Hi							638	20.2	100.1
	Mid							1408	44.7	100.1
	Lo				1	0.1		1105	35.1	100.1
Subtotal					1	0.0		3151	100.0	100.1
MEN NONGRAD	Hi	-	-	100.1				192	7.7	100.1
	Mid	1	0.1	100.1				1001	39.9	100.1
	Lo	-	-	100.2				1314	52.4	100.2
Subtotal		1	0.0	100.1				2507	100.0	100.1

Appendix C

Table 19

Mean and Standard Deviation Number of Quarters in Attendance at the University of Minnesota for the Women and Men Graduates and Nongraduates of Varying Ability

Group		Number of Quarters		
		N	Mean	SD
WOMEN GRAD	Hi	757	12.79	1.68
	Mid	811	13.04	1.70
	Lo	601	13.36	1.85
Subtotal		2169	13.04	1.75
WOMEN NONGRAD	Hi	510	5.88	3.85
	Mid	1008	5.15	3.84
	Lo	946	4.68	3.33
Subtotal		2464	5.12	3.68
MEN GRAD	Hi	638	13.31	2.20
	Mid	1408	13.66	2.23
	Lo	1105	14.22	2.49
Subtotal		3151	13.79	2.34
MEN NONGRAD	Hi	192	6.97	4.28
	Mid	1001	6.00	5.00
	Lo	1314	5.46	4.22
Subtotal		2507	5.79	4.62

Table 20

College of Enrollment at the University of Minnesota for Women and Men Graduates and Nongraduates of Varying Ability

Group		College													
		Ag; Fores; Home Ec		Bus Adm.		Dent.		Educ.		Gen. Coll.		Inst. of Tech.		Law	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	15	2.0	14	1.8	2	0.3	203	26.8	0	0.0	2	0.3	3	0.4
	Mid	11	1.4	16	2.0	6	0.7	296	36.5	1	0.1	0	0.0	1	0.1
	Lo	22	3.7	7	1.2	7	1.2	256	42.6	0	0.1	0	0.0	0	0.0
Subtotal		48	2.2	37	1.7	15	0.7	755	34.8	1	0.0	2	0.1	4	0.2
WOMEN NONGRAD	Hi	4	0.8	7	1.4	0	0.0	25	4.9	1	0.2	1	0.2	0	0.0
	Mid	5	0.5	8	0.8	1	0.1	47	4.7	17	1.7	1	0.1	1	0.1
	Lo	9	1.0	1	0.1	3	0.3	53	5.6	39	4.1	0	0.0	0	0.0
Subtotal		18	0.7	16	0.6	4	0.2	125	5.1	57	2.3	2	0.1	1	0.0
MEN GRAD	Hi	4	0.6	100	15.7	25	3.9	64	10.0	0	0.0	19	3.0	32	5.0
	Mid	15	1.1	310	22.0	64	4.5	123	8.7	0	0.0	56	4.0	52	3.7
	Lo	14	1.3	279	25.2	44	4.0	108	9.8	1	1.1	53	4.8	23	2.1
Subtotal		33	1.0	689	21.9	133	4.2	295	9.4	1	0.0	128	4.1	107	3.4
MEN NONGRAD	Hi	1	0.5	18	9.4	0	0.0	4	2.1	0	0.0	10	5.2	2	1.0
	Mid	7	0.7	45	4.5	1	0.1	21	2.1	45	4.5	33	3.3	4	0.4
	Lo	6	0.5	41	3.1	1	0.1	25	1.9	129	9.8	29	2.2	3	0.2
Subtotal		14	0.6	104	4.1	2	0.1	50	2.0	174	6.9	72	2.9	9	0.4

Table continued

Appendix C

Table 20 continued

Group		College													
		CLA		Comb. CLA & Educ.		Med. Sci.		Pharm.		Univ. Coll.		Vet. Med.		Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	348	46.0	6	0.8	149	19.7	3	0.4	12	1.6			757	34.9
	Mid	314	38.7	1	0.1	147	18.1	1	0.1	17	2.1			811	37.4
	Lo	185	30.8	0	0.0	109	18.1	2	0.3	13	2.2			601	27.7
Subtotal		847	39.1	7	0.3	405	18.7	6	0.3	42	1.9			2196	100.0
WOMEN NONGRAD	Hi	458	89.8	0	0.0	12	2.4	0	0.0	2	0.4			510	20.7
	Mid	906	89.9	2	0.2	15	1.5	2	0.2	3	0.3			1008	40.9
	Lo	831	87.8	0	0.0	9	1.0	0	0.0	1	0.1			946	38.4
Subtotal		2195	89.1	2	0.1	36	1.5	2	0.1	6	0.2			2464	100.0
MEN GRAD	Hi	349	54.7	0	0.0	26	4.1	10	1.6	9	1.4	0	0.0	638	20.2
	Mid	735	52.2	1	0.1	18	1.3	25	1.8	8	0.6	1	0.1	1408	44.7
	Lo	544	49.2	1	0.1	10	.9	11	1.0	13	1.2	4	0.4	1105	35.1
Subtotal		1628	51.7	2	0.1	54	1.7	46	1.5	30	1.0	5	0.2	3151	100.1
MEN NONGRAD	Hi	157	81.8	0	0.0	0	0.0	0	0.0					192	7.7
	Mid	839	83.8	2	0.2	1	0.1	3	0.3					1001	39.9
	Lo	1070	81.4	1	0.1	2	0.2	7	0.5					1314	52.4
Subtotal		2066	82.4	3	0.1	3	0.1	10	0.4					2507	100.0

Table 21

General Major Fields of Women and Men Graduates and Nongraduates of Varying Ability

Groups		Ag, Fores		Pre-Ag, Pre-For		Vet Med		Pre-Vet Med		Home Econ		Pre-Home Econ	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	15	2.0	-	0.0
	Mid	-	0.0	-	0.0	-	0.0	-	0.0	11	1.4	-	0.0
	Lo	-	0.0	-	0.0	-	0.0	-	0.0	20	3.3	-	0.0
Subtotal		0	0.0	0	0.0	0	0.0	0	0.0	46	2.1	0	0.0
FEMALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	4	0.8	-	0.0
	Mid	-	0.0	-	0.0	-	0.0	-	0.0	5	0.5	4	0.4
	Lo	1	0.1	-	0.0	-	0.0	1	0.1	7	0.7	2	0.2
Subtotal		1	0.0	0	0.0	0	0.0	1	0.0	16	0.6	6	0.2
Female Total		1	0.0	0	0.0	0	0.0	1	0.0	62	1.3	6	0.1
MALE GRAD	Hi	3	0.5	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
	Mid	16	1.1	-	0.0	1	0.1	-	0.0	-	0.0	-	0.0
	Lo	13	1.2	-	0.0	4	0.4	-	0.0	-	0.0	-	0.0
Subtotal		32	1.0	0	0.0	5	0.2	0	0.0	0	0.0	0	0.0
MALE NONGRAD	Hi	1	0.5	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
	Mid	7	0.7	-	0.0	-	0.0	1	0.1	-	0.0	-	0.0
	Lo	5	0.4	2	0.2	-	0.0	-	0.0	-	0.0	-	0.0
Subtotal		13	0.5	2	0.1	0	0.0	1	0.0	0	0.0	0	0.0
Male Total		45	0.8	2	0.0	5	0.1	1	0.0	0	0.0	0	0.0
Grand Total		46	0.4	2	0.0	5	0.0	2	0.0	62	0.6	6	0.1

Table continued

Appendix C

Table 21 continued

Groups		Engin or Sci		Pre-Engin (CLA)		Bus Adm		Pre-Bus Adm		Educ		Elem Educ		Pre-Educ	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	2	0.3	-	0.0	14	1.8	-	0.0	-	0.0	65	8.6	-	0.0
	Mid	-	0.0	-	0.0	16	2.0	-	0.0	-	0.0	131	16.2	-	0.0
	Lo	-	0.0	-	0.0	7	1.2	-	0.0	-	0.0	122	20.3	-	0.0
Subtotal		2	0.1	0	0.0	37	1.7	0	0.0	0	0.0	318	14.7	0	0.0
FEMALE NONGRAD	Hi	1	0.2	-	0.0	6	1.2	23	4.5	1	0.0	4	0.8	21	4.1
	Mid	1	0.1	-	0.0	8	0.8	35	3.5	33	3.3	2	0.2	82	8.1
	Lo	-	0.0	-	0.0	1	0.1	38	4.0	35	3.7	5	0.5	84	8.9
Subtotal		2	0.1	0	0.0	15	0.6	96	3.9	69	2.8	11	0.4	187	7.6
Female Total		4	0.1	0	0.0	52	1.1	96	2.1	69	1.5	329	7.1	187	4.0
MALE GRAD	Hi	19	3.0	-	0.0	100	15.7	-	0.0	-	0.0	2	0.3	-	0.0
	Mid	56	4.0	-	0.0	311	22.1	-	0.0	-	0.0	18	1.3	1	0.1
	Lo	53	4.8	-	0.0	282	25.5	-	0.0	-	0.0	14	1.3	-	0.0
Subtotal		128	4.1	0	0.0	693	22.0	0	0.0	0	0.0	34	1.1	1	0.0
MALE NONGRAD	Hi	10	5.2	3	1.6	18	9.4	14	7.3	4	2.1	-	0.0	3	1.6
	Mid	33	3.3	27	2.7	49	4.9	162	16.2	13	1.3	-	0.0	48	4.8
	Lo	29	2.2	55	4.2	42	3.2	282	21.5	23	1.8	-	0.0	43	3.3
Subtotal		72	2.9	85	3.4	109	4.3	458	18.3	40	1.6	0	0.0	94	3.7
Male Total		200	3.5	85	1.5	802	14.2	458	8.1	40	0.7	34	0.6	95	1.7
Grand Total		204	2.0	85	0.8	854	8.3	554	5.4	109	1.1	363	3.5	282	2.7

Table continued

Appendix C

Table 21 continued

Groups		Nurs, Kdgtn & Prim		Art or Mus Ed		Bus or Dist Ed		Indus Ed		Phys Ed or Rec Ldrsp		Double Majs (Sec Ed)		Nat Sci or Math (Sec Ed)	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	6	0.8	15	2.0	7	0.9	-	0.0	4	0.5	3	0.4	18	2.4
	Mid	29	3.6	25	3.1	5	0.6	-	0.0	20	2.5	1	0.1	3	0.4
	Lo	35	5.8	18	3.0	3	0.5	-	0.0	25	4.2	2	0.3	4	0.7
Subtotal		70	3.2	58	2.7	15	0.7	0	0.0	49	2.3	6	0.3	25	1.2
FEMALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	3	0.6	-	0.0
	Mid	-	0.0	5	0.5	5	0.1	-	0.0	-	0.0	-	0.0	-	0.0
	Lo	-	0.0	3	0.3	3	0.0	-	0.0	1	0.1	-	0.0	-	0.0
Subtotal		0	0.0	8	0.3	8		0	0.0	1	0.0	3	0.1	0	0.0
Female Total		70	1.5	66	1.4	66	0.3	0	0.0	50	1.1	9	0.2	25	0.5
MALE GRAD	Hi	-	0.0	6	0.9	6	0.2	1	0.2	5	0.8	-	0.0	22	3.4
	Mid	-	0.0	9	0.6	9	0.1	8	0.6	13	0.9	1	0.1	24	1.7
	Lo	-	0.0	11	1.0	11	0.5	9	0.8	18	1.6	1	0.1	13	1.2
Subtotal		0	0.0	26	0.8	26	0.3	18	0.6	36	1.1	2	0.1	59	1.9
MALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0
	Mid	-	0.0	-	0.0	-	0.0	-	0.0	1	0.1	1	0.1	-	0.0
	Lo	-	0.0	-	0.0	-	0.0	-	0.0	1	0.1	-	0.0	-	0.0
Subtotal		0	0.0	0	0.0	0	0.0	0	0.0	2	0.1	1	0.0	0	0.0
Male Total		0	0.0	26	0.5	8	0.1	18	0.3	38	0.7	3	0.1	59	1.0
Grand Total		70	0.7	92	0.9	24	0.2	18	0.2	88	0.9	12	0.1	84	0.8

Table continued

Appendix C

Table 21 - continued

Groups		Soc Sci (Sec Ed) f	Soc Sci (Sec Ed) %	Verb, Ling & Arts (Sec Ed) f	Verb, Ling & Arts (Sec Ed) %	Langs (Sec Ed) f	Langs (Sec Ed) %	Sec Ed f	Sec Ed %	"Other" (Sec Ed) f	"Other" (Sec Ed) %	Comb CLA & Ed f	Comb CLA & Ed %	Interdis Majors f	Interdis Majors %	Soc Sci (CLA) f	Soc Sci (CLA) %	Nat Sci & Math (CLA) f	Nat Sci & Math (CLA) %
FEMALE GRAD	Hi	12	1.6	43	5.7	32	4.2	-	0.0	-	0.0	6	0.8	48	6.3	140	18.5	19	2.5
	Mid	12	1.5	38	4.7	25	3.1	-	0.0	8	1.0	1	0.1	38	4.7	134	16.5	11	1.4
	Lo	7	1.2	26	4.3	15	2.5	-	0.0	2	0.3	-	0.0	25	4.2	80	13.3	6	1.0
Subtotal		31	1.4	107	4.9	72	3.3	0	0.0	10	0.5	7	0.3	111	5.1	354	16.3	36	1.7
FEMALE NONGRAD	Hi	1	0.2	6	1.2	5	1.0	8	1.6	-	0.0	-	0.0	16	3.1	58	11.4	31	6.1
	Mid	5	0.5	-	0.0	-	0.0	-	0.0	-	0.0	2	0.2	27	2.7	111	11.0	16	1.6
	Lo	4	0.4	2	0.2	-	0.0	1	0.0	-	0.0	-	0.0	12	1.3	85	9.0	6	0.6
Subtotal		10	0.4	8	0.3	5	0.2	9	0.4	0	0.0	2	0.1	55	2.2	254	10.3	53	2.2
Female Total		41	0.9	115	2.5	77	1.7	9	0.2	10	0.2	9	0.4	166	3.6	608	13.1	89	1.9
MALE GRAD	Hi	11	1.7	12	1.9	3	0.5	-	0.0	1	0.2	-	0.0	28	4.4	109	17.1	64	10.0
	Mid	24	1.7	15	1.1	6	0.4	-	0.0	4	0.3	2	0.1	44	3.1	373	26.5	75	5.3
	Lo	20	1.8	6	0.5	7	0.6	-	0.0	2	0.2	1	0.1	31	2.8	299	27.1	31	2.8
Subtotal		55	1.7	33	1.0	16	0.5	0	0.0	7	0.2	3	0.1	103	3.3	781	24.8	178	5.6
MALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	4	2.1	29	15.1	20	10.4
	Mid	1	0.1	1	0.1	1	0.1	-	0.0	-	0.0	-	0.0	13	1.3	100	10.0	74	7.4
	Lo	-	0.0	-	0.0	-	0.0	-	0.0	1	0.1	-	0.0	12	0.9	94	7.2	59	4.5
Subtotal		1	0.0	1	0.0	1	0.0	0	0.0	1	0.0	0	0.0	29	1.2	223	8.9	153	6.1
Male Total		56	1.0	34	0.6	17	0.3	0	0.0	8	0.1	3	0.1	132	2.3	1004	17.7	331	5.9
Grand Total		97	0.9	149	1.4	94	0.9	9	0.1	18	0.2	12	0.1	298	2.9	1612	15.7	420	4.1

Table continued

Table 21- continued

Groups		Verb-Ling & Arts (CLA)		Langs (CLA)		Doub Majs (CLA)		"Other" (CLA)		Pre-Theol (CLA)		NONE (CLA)		Univ Coll Major		Law		Pre-Law (CLA)	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	108	14.3	18	2.4	8	1.1	-	0.0	-	0.0	-	0.0	11	1.5	3	0.4	-	0.0
	Mid	103	12.7	20	2.5	8	1.0	-	0.0	-	0.0	-	0.0	17	2.1	1	0.1	-	0.0
	Lo	49	8.2	19	3.2	6	1.0	-	0.0	-	0.0	-	0.0	13	2.2	-	0.0	-	0.0
Subtotal		260	12.0	57	2.6	22	1.0	0	0.0	0	0.0	0	0.0	41	1.9	4	0.2	0	0.0
FEMALE NONGRAD	Hi	93	18.2	19	3.7	-	0.0	8	1.6	-	0.0	100	19.6	2	0.4	-	0.0	3	0.6
	Mid	172	17.1	17	1.7	5	0.5	17	1.7	-	0.0	283	28.1	3	0.3	1	0.1	5	0.5
	Lo	130	13.7	10	4.9	1	0.1	34	3.6	1	0.1	311	32.9	1	0.1	-	0.0	2	0.2
Subtotal		395	16.0	46	1.9	6	0.2	59	2.4	1	0.0	694	28.2	6	0.2	1	0.0	10	0.4
Female Total		655	14.1	103	2.2	28	0.6	59	1.3	1	0.0	694	15.0	47	1.9	5	0.1	10	0.2
MALE GRAD	Hi	49	7.7	8	1.3	9	1.4	1	0.2	-	0.0	-	0.0	10	1.6	32	5.0	3	0.5
	Mid	139	9.9	6	0.4	8	0.6	3	0.2	4	0.3	1	0.1	8	0.6	51	3.6	11	0.8
	Lo	125	11.3	8	0.7	7	0.6	-	0.0	6	0.5	-	0.0	15	1.4	22	2.0	6	0.5
Subtotal		313	9.9	22	0.7	24	0.8	4	0.1	10	0.3	1	0.0	33	1.0	105	3.3	20	0.6
MALE NONGRAD	Hi	21	10.9	2	1.0	4	2.1	2	1.0	1	0.5	27	14.1	-	0.0	2	1.0	4	2.1
	Mid	79	7.9	5	0.5	4	0.4	16	1.6	6	0.6	176	17.6	3	0.3	4	0.4	44	4.4
	Lo	116	8.8	5	0.4	6	0.5	10	0.8	6	0.5	260	19.8	7	0.5	5	0.4	51	3.9
Subtotal		216	8.6	12	0.5	14	0.6	28	1.1	13	0.5	463	18.5	10	0.4	11	0.4	99	3.9
Male Total		529	9.3	34	0.6	38	0.7	32	0.6	23	0.4	464	8.2	43	0.8	116	2.1	119	2.1
Grand Total		1184	11.5	137	1.3	66	0.6	91	0.9	24	0.2	1158	11.3	90	0.9	121	1.2	129	1.3

Table continued

Table 21 - continued

Groups		Mort Sci		Dent Hyg		Dent		Pre-Dent (CLA)		Pharm		Pre-Pharm (CLA)		Med Tech		Pre-Med Tech (CLA)		Occ Ther	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	-	0.0	2	0.3	-	0.0	-	0.0	3	0.4	-	0.0	48	6.3	-	0.0	19	2.5
	Mid	1	0.1	6	0.7	-	0.0	-	0.0	1	0.1	-	0.0	34	4.2	-	0.0	25	3.1
	Lo	-	0.0	7	1.2	-	0.0	-	0.0	2	0.3	-	0.0	14	2.3	-	0.0	22	3.7
Subtotal		1	0.0	15	0.7	0	0.0	0	0.0	6	0.3	0	0.0	96	4.4	0	0.0	66	3.0
FEMALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	2	0.4	3	0.6	29	5.7	1	0.2
	Mid	-	0.0	1	0.1	-	0.0	-	0.0	2	0.2	1	0.1	1	0.1	39	3.9	-	0.0
	Lo	1	0.1	3	0.3	-	0.0	-	0.0	-	0.0	-	0.0	1	0.1	25	2.6	-	0.0
Subtotal		1	0.0	4	0.2	0	0.0	0	0.0	2	0.1	3	0.1	5	0.2	93	3.8	1	0.0
Female Total		2	0.1	19	0.8	0	0.0	0	0.0	8	0.2	3	0.1	101	2.2	93	2.0	67	1.4
MALE GRAD	Hi	1	0.2	-	0.0	25	3.9	-	0.0	10	1.6	-	0.0	2	0.3	-	0.0	-	0.0
	Mid	2	0.1	-	0.0	64	4.5	2	0.1	25	1.8	-	0.0	1	0.1	-	0.0	-	0.0
	Lo	4	0.4	-	0.0	43	3.9	3	0.3	12	1.1	-	0.0	1	0.1	-	0.0	-	0.0
Subtotal		7	0.2	0	0.0	132	4.2	5	0.2	47	1.5	0	0.0	4	0.1	0	0.0	0	0.0
MALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	1	0.5	-	0.0	2	1.0	-	0.0	-	0.0	-	0.0
	Mid	1	0.1	-	0.0	1	0.1	25	2.5	1	0.1	10	1.0	-	0.0	1	0.1	-	0.0
	Lo	1	0.1	-	0.0	1	0.1	26	2.0	3	0.2	8	0.6	-	0.0	1	0.1	-	0.0
Subtotal		2	0.1	0	0.0	2	0.1	52	2.1	4	0.2	20	0.2	0	0.0	2	0.1	0	0.0
Male Total		9	0.2	0	0.0	134	2.4	57	1.0	51	0.9	20	0.4	4	0.1	2	0.0	0	0.0
Grand Total		11	0.1	19	0.2	134	1.3	51	0.6	59	0.6	23	0.2	105	1.0	95	0.9	67	0.7

Table continued

Table 21 - continued

Groups		Pre-Occ Ther (CLA)		Phys Ther		Pre-Phys Ther (CLA)		Nurs'g		Pre-Nurs'g		Med		Pre-Med (CLA)		Gen Coll Majs		Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	-	0.0	12	1.6	-	0.0	65	8.6	-	0.0	8	1.1	3	0.4	-	0.0	757	34.9
	Mid	-	0.0	11	1.4	-	0.0	76	9.4	-	0.0	-	0.0	-	0.0	-	0.0	811	37.4
	Lo	-	0.0	9	1.5	-	0.0	63	10.5	-	0.0	-	0.0	-	0.0	-	0.0	601	27.7
Subtotal		0	0.0	32	1.5	0	0.0	204	9.4	0	0.0	8	0.4	3	0.1	0	0.0	2169	46.8
FEMALE NONGRAD	Hi	5	1.0	-	0.0	5	1.0	10	2.0	26	5.1	-	0.0	15	2.9	1	0.2	510	20.7
	Mid	22	2.2	1	0.1	10	1.0	12	1.2	52	5.2	-	0.0	11	1.1	16	1.6	1008	40.9
	Lo	16	1.7	-	0.0	10	1.1	6	0.6	68	7.2	-	0.0	1	0.1	37	3.9	946	38.4
Subtotal		43	1.7	1	0.0	25	1.0	28	1.1	146	5.9	0	0.0	27	1.1	54	2.2	2464	53.2
Female Total		43	0.9	33	0.7	25	0.5	232	5.0	146	3.2	8	0.2	30	0.6	54	2.2	4633	100.0
MALE GRAD	Hi	-	0.0	1	0.2	-	0.0	-	0.0	-	0.0	23	3.6	76	11.9	-	0.0	638	20.2
	Mid	-	0.0	2	0.1	-	0.0	2	0.1	-	0.0	10	0.7	66	4.7	-	0.0	1408	44.7
	Lo	-	0.0	2	0.2	-	0.0	1	0.1	-	0.0	2	0.2	19	1.7	-	0.0	1105	35.1
Subtotal		0	0.0	5	0.2	0	0.0	3	0.1	0	0.0	35	1.1	161	5.1	0	0.0	3151	55.7
MALE NONGRAD	Hi	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	20	10.4	-	0.0	192	7.7
	Mid	-	0.0	1	0.1	-	0.0	-	0.0	-	0.0	1	0.1	43	4.3	48	4.8	1001	39.9
	Lo	1	0.1	-	0.0	1	0.1	-	0.0	-	0.0	-	0.0	30	2.3	128	9.7	1314	52.4
Subtotal		1	0.0	1	0.0	1	0.0	0	0.0	0	0.0	1	0.0	93	3.7	176	7.0	2507	44.3
Male Total		1	0.0	6	0.1	1	0.0	3	0.1	0	0.0	36	0.6	254	4.5	176	3.1	5658	100.0
Grand Total		44	0.4	39	0.4	26	0.3	235	2.3	146	1.4	44	0.4	284	2.8	230	2.2	10291	100.0

Appendix C

Table 22

Baccalaureate Degrees Earned at the University of Minnesota by Women and Men Graduates of Varying Ability

Group		Baccalaureate Degree													
		B.A.		B.S.		B. of Ag. Bus Adm[a]		BBA[b]		B.S. in Bus		B.S. in Econ.		B.S. in Law	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	358	47.3	369	48.7			11	1.5	2	0.3	1	0.1	2	0.3
	Mid	321	39.6	457	56.4			13	1.6	2	0.2	-	-	-	-
	Lo	191	31.8	392	65.2			5	0.8	1	0.2	-	-	-	-
Subtotal		870	40.1	1218	56.2			29	1.3	5	0.2	1	0.0	2	0.1
MEN GRAD	Hi	360	56.4	117	18.3	-	-	74	11.6	18	2.8	7	1.1	30	4.7
	Mid	728	51.7	235	16.7	-	-	251	17.8	50	3.6	9	0.6	45	3.2
	Lo	540	48.9	195	17.6	1	0.1	219	19.8	42	3.8	6	0.5	17	1.5
Subtotal		1628	51.7	547	17.4	1	0.0	544	17.3	110	3.5	22	0.7	92	2.9
Total		2498	47.0	1765	33.2	1	0.0	573	10.8	115	2.2	23	0.4	94	1.8

[a] Bachelor of Agricultural Business Administration.

[b] Bachelor of Business Administration.

Table continued

Appendix C

Table 22 continued

Group		Baccalaureate Degree													
		B. of Aeron. Engin.[c]		B. of Ag. Engin.[d]		B. of Arch.[e]		B. of Lands Arch[f]		B. of Chem Engin		B. of Chem		B. of Civ. Engin	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	-	-			1	0.1	1	0.1						
	Mid	1	0.1			-	-	1	0.1						
	Lo	-	-			-	-	-	-						
Subtotal		1	0.0			1	0.0	2	0.1						
MEN GRAD	Hi	1	0.2	1	0.2	-	-			3	0.5	-	-	-	-
	Mid	3	0.2	-	-	3	0.2			3	0.2	1	0.1	7	0.5
	Lo	4	0.4	1	0.1	3	0.3			1	0.1	-	-	3	0.3
Subtotal		8	0.3	2	0.1	6	0.2			7	0.2	1	0.0	10	0.3
Total		9	0.2	2	0.0	7	0.1	2	0.0	7	0.1	1	0.0	10	0.2

[c] Bachelor of Aeronautical Engineering.

[d] Bachelor of Agricultural Enginnering.

[e] Bachelor of Architecture.

[f] Bachelor of Landscape Archietecture.

Table continued

Appendix C

Table 22 continued

Group		Baccalaureate Degree													
		B. of Elec. Engin		B. of Geol. Engin.[g]		B. S. in Geophys.		B. of Mechan Engin.		B. of Metall.[h]		B. of Min'g Engin.[i]		B. of Phys.	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi														
	Mid														
	Lo														
Subtotal															
MEN GRAD	Hi	3	0.5	-	-	-	-	6	0.9	-	-	-	-	1	0.2
	Mid	14	1.0	1	0.1	1	0.1	14	1.0	-	-	1	0.1	2	0.1
	Lo	14	1.3	2	0.2	-	-	19	1.7	2	0.2	-	-	-	-
Subtotal		31	1.0	3	0.1	1	0.0	39	1.2	2	0.1	1	0.0	3	0.1
Total		31	0.6	3	0.1	1	0.0	39	0.7	2	0.0	1	0.0	3	0.1

[g] Bachelor of Geological Engineering.

[h] Bachelor of Metallurgy.

[i] Bachelor of Mining Engineering.

Table continued

Table 22 continued

Group		D. of Dent Surg.[j]		D. of Vet Med		Doub. Bach's.[k]		Other Bach.[l]		GDH[m]		Assoc in Mort Sci[n]		1-2 Yr. + Bach.[o]	
						Baccalaureate Degree									
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi					7	0.9			2	0.3	-	-	2	0.3
	Mid					1	0.1			5	0.6	1	0.1	8	0.1
	Lo					-	-			7	1.2	-	-	5	0.8
Subtotal						8	0.4			14	0.6	1	0.0	15	0.7
MEN GRAD	Hi	6	0.9	-	-	3	0.5	1	0.2			1	0.2	6	0.9
	Mid	4	0.3	1	0.1	5	0.4	3	0.2			2	0.1	24	1.7
	Lo	5	0.5	-	-	2	0.2	1	0.1			4	0.4	24	2.2
Subtotal		15	0.3	1	0.0	10	0.3	5	0.2			7	0.2	54	1.7
Total		15	0.3	1	0.0	18	0.3	5	0.1	14	0.3	8	0.2	69	1.3

[j] Doctor of Dental Surgery.

[k] Double Degree (Bachelor's Program).

[l] Other Bachelor/Equivalent Degree.

[m] Graduate of Dental Hygiene.

[n] Degree of Associate in Mortuary Science.

[o] A 1-2 Yr. Degree (Cert. Plus Bacheldor's Degree).

Table continued

Table 22 continued

Group		Baccalaureate Degree			
		No Answer		Total	
		f	%	f	%
WOMEN GRAD	Hi	1	0.1	757	34.9
	Mid	1	0.1	811	37.4
	Lo	-	-	601	27.7
Subtotal		2	0.0	2169	100.0
MEN GRAD	Hi	-	-	638	20.2
	Mid	1	0.1	1408	44.7
	Lo	-	-	1105	35.1
Subtotal		1	0.0	3151	100.0
Total		3	0.1	5320	100.0

Table 23

One- and Two-Year Degrees/Certificates Earned at the University of Minnesota by Women and Men Nongraduates of Varying Ability

Nongraduates	Degree/Certificate									
	ALA[a]		AA[b]		Cert. Prac. Nurs.[c]		Doub. Deg./Cert.[d]		Other[e]	
	f	%	f	%	f	%	f	%	f	%
WOMEN Hi	27	5.3	--	--	--	--	--	--		
Mid	60	6.0	3	0.3	3	0.3	--	--		
Lo	52	5.5	10	1.1	3	0.3	6	0.6		
Subtotal	139	5.6	13	0.5	6	0.2	6	0.2		
MEN Hi	6	3.1	--	--					--	--
Mid	21	2.1	20	2.0					--	--
Lo	31	2.4	60	4.6					2	0.2
Subtotal	58	2.3	80	3.2					2	0.1
Total	197	4.0	93	1.9	6	0.1	6	0.1	2	0.0

[a] Associate of Liberal Arts
[b] Associate of Arts
[c] Certificate in Practical Nursing
[d] Double Degree/Certificate
[e] Other 1 - 2 Year Degree/Certificate

Table continued

Table 23 continued

Nongraduates	Subtotal		None		No Ans.		Total	
	f	%	f	%	f	%	f	%
WOMEN Hi	27	5.3	483	94.7	--	--	510	20.7
Mid	66	6.6	941	93.4	1	0.1	1008	40.9
Lo	71	7.5	874	92.4	1	0.1	946	38.4
Subtotal	164	6.7	2298	93.3	2	0.1	2464	100.0
MEN Hi	6	3.1	186	96.9	--	--	192	7.7
Mid	41	4.1	960	95.9	--	--	1001	39.9
Lo	93	7.1	1218	92.7	3	0.3	1314	52.4
Subtotal	140	5.6	2364	94.3	3	0.1	2507	100.0
Total	304	6.1	4662	93.8	5	0.1	4971	100.0

Appendix C

Table 24

Frequency and Percentage of Cumulative Grade Point Averages (GPA) for Women and Men Graduates and Nongraduates of Varying Ability

Group		GPA									
		0.00-0.09		1.10-1.19		0.20-0.29		0.30-0.39		0.40-0.49	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
WOMEN NONGRAD	Hi	22	4.3	--	--	1	0.2	--	--	--	--
	Mid	60	6.0	1	0.1	1	0.1	2	0.2	2	0.2
	Lo	74	7.8	1	0.1	1	0.1	3	0.3	3	0.3
Subtotal		156	6.3	2	0.1	3	0.1	5	0.2	5	0.2
Total		156	3.4	2	0.0	3	0.1	5	0.1	5	0.1
MEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
MEN NONGRAD	Hi	8	4.2	--	--	--	--	--	--	1	0.5
	Mid	74	7.4	4	0.4	2	0.2	5	0.5	3	0.3
	Lo	147	11.2	3	0.2	17	1.3	5	0.4	9	0.7
Subtotal		229	9.1	7	0.3	19	0.8	10	0.4	13	0.5
Total		229	4.0	7	0.1	19	0.3	10	0.2	13	0.2

Table continued

Appendix C

Table 24 continued

Group		GPA									
		0.50-0.59		0.60-0.69		0.70-0.79		0.80-0.89		0.90-0.99	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
WOMEN NONGRAD	Hi	--	--	--	--	--	--	--	--	--	--
	Mid	3	0.3	4	0.4	2	0.2	5	0.5	5	0.5
	Lo	6	0.6	4	0.4	7	0.7	12	1.3	8	0.8
Subtotal		9	0.4	8	0.3	9	0.4	17	0.7	13	0.5
Total		9	0.2	8	0.2	9	0.2	18	0.4	13	0.3
MEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
MEN NONGRAD	Hi	--	--	--	--	--	--	1	0.5	--	--
	Mid	10	1.0	11	1.1	14	1.4	14	1.4	8	0.8
	Lo	13	1.0	12	0.9	23	1.8	22	1.7	20	1.5
Subtotal		23	0.9	23	0.9	37	1.5	37	1.5	28	1.1
Total		23	0.4	23	0.4	37	0.7	37	0.7	28	0.5

Table continued

Table 24 continued

Group		GPA									
		1.00-1.09		1.10-1.19		1.20-1.29		1.30-1.39		1.40-1.49	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
WOMEN NONGRAD	Hi	1	0.2	--	--	3	0.6	1	0.2	6	1.2
	Mid	17	1.7	9	0.9	19	1.9	28	2.8	32	3.2
	Lo	14	1.5	13	1.4	22	2.3	35	3.7	35	3.7
Subtotal		32	1.3	22	0.9	44	1.8	64	2.6	73	3.0
Total		33	0.7	22	0.5	45	1.0	64	1.4	73	1.6
MEN GRAD	Hi										
	Mid										
	Lo										
Subtotal											
MEN NONGRAD	Hi	2	1.0	2	1.0	--	--	4	2.1	6	3.1
	Mid	31	3.1	32	3.2	35	3.5	36	3.6	53	5.3
	Lo	48	3.7	38	2.9	58	4.4	50	3.8	84	6.4
Subtotal		81	3.2	72	2.9	93	3.7	90	3.6	143	5.7
Total		81	1.4	72	1.3	93	1.6	90	1.6	143	2.5

Table continued

Table 24 continued

Group		GPA 1.50-1.59 f	 %	 1.60-1.69 f	 %	 1.70-1.79 f	 %	 1.80-1.89 f	 %	 1.90-1.99 f	 %
WOMEN GRAD	Hi									2	0.3
	Mid									7	0.9
	Lo									7	1.2
Subtotal										16	0.7
WOMEN NONGRAD	Hi	8	1.6	8	1.6	15	2.9	12	2.4	12	2.4
	Mid	27	2.7	49	4.9	65	6.4	76	7.5	68	6.7
	Lo	56	5.9	59	6.2	62	6.6	73	7.7	66	7.0
Subtotal		91	3.7	116	4.7	142	5.8	161	6.5	146	5.9
Total		91	2.0	116	2.5	142	3.1	161	3.5	162	3.5
MEN GRAD	Hi					--	--	1	0.2	6	0.9
	Mid					--	--	3	0.2	25	1.8
	Lo					2	0.2	1	0.1	42	3.8
Subtotal						2	0.1	5	0.2	73	2.3
MEN NONGRAD	Hi	7	3.6	5	2.6	8	4.2	13	6.8	12	6.3
	Mid	52	5.2	57	5.7	76	7.6	69	6.9	77	7.7
	Lo	73	5.6	96	7.3	107	8.1	118	9.0	88	6.7
Subtotal		132	5.3	158	6.3	191	7.6	200	8.0	177	7.1
Total		132	2.3	158	2.8	193	3.4	205	3.6	250	4.4

Table continued

Appendix C

Table 24 continued

Group		GPA 2.00-2.09 f	 %	 2.10-2.19 f	 %	 2.20-2.29 f	 %	 2.30-2.39 f	 %	 2.40-2.49 f	 %
WOMEN GRAD	Hi	4	0.5	13	1.7	16	2.1	23	3.0	29	3.8
	Mid	21	2.6	33	4.1	42	5.2	56	6.9	61	7.5
	Lo	26	4.3	29	4.8	78	13.0	70	11.6	71	11.8
Subtotal		51	2.4	75	3.5	136	6.3	149	6.9	161	7.4
WOMEN NONGRAD	Hi	20	3.9	29	5.7	43	8.4	39	7.6	24	4.7
	Mid	87	8.6	73	7.2	59	5.9	57	5.7	53	5.3
	Lo	76	8.0	58	6.1	48	5.1	45	4.8	37	3.9
Subtotal		183	7.4	160	6.5	150	6.1	141	5.7	114	4.6
Total		234	5.1	235	5.1	286	6.2	290	6.3	275	5.9
MEN GRAD	Hi	8	1.3	12	1.9	32	5.0	25	3.9	38	6.0
	Mid	94	6.7	145	10.3	136	9.7	146	10.4	144	10.2
	Lo	149	13.5	159	14.4	150	13.6	141	12.8	117	10.6
Subtotal		251	8.0	316	10.0	318	10.1	312	9.9	299	9.5
MEN NONGRAD	Hi	18	9.4	15	7.8	14	7.3	11	5.7	10	5.2
	Mid	64	6.4	68	6.8	45	4.5	38	3.8	28	2.8
	Lo	86	6.5	56	4.3	31	2.4	29	2.2	17	1.3
Subtotal		168	6.7	139	5.5	90	3.6	78	3.1	55	2.2
Total		419	7.4	455	8.0	408	7.2	390	6.9	354	6.3

Table continued

Table 24 continued

Group		GPA									
		2.50-2.59		2.60-2.69		2.70-2.79		2.80-2.89		2.90-2.99	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	42	5.5	49	6.5	55	7.3	44	5.8	37	4.9
	Mid	87	10.7	87	10.7	89	11.0	56	6.9	61	7.5
	Lo	66	11.0	49	8.2	51	8.5	35	5.8	32	5.3
Subtotal		195	9.0	185	8.5	195	9.0	135	6.2	130	6.0
WOMEN NONGRAD	Hi	29	5.7	30	5.9	28	5.5	30	5.9	31	6.1
	Mid	46	4.6	32	3.2	28	2.8	27	2.7	18	1.8
	Lo	37	3.9	28	3.0	13	1.4	9	1.0	9	1.0
Subtotal		112	4.5	90	3.7	69	2.8	66	2.7	58	2.4
Total		307	6.6	275	5.9	264	5.7	201	4.3	188	4.1
MEN GRAD	Hi	37	5.8	47	7.4	30	4.7	42	6.6	35	5.5
	Mid	121	8.6	108	7.7	96	6.8	69	4.9	84	6.0
	Lo	89	8.1	71	6.4	58	5.2	30	2.7	30	2.7
Subtotal		247	7.8	226	7.2	184	5.8	141	4.5	149	4.7
MEN NONGRAD	Hi	6	3.1	8	4.2	6	3.1	2	1.0	9	4.7
	Mid	30	3.0	16	1.6	11	1.1	7	0.7	5	0.5
	Lo	22	1.7	14	1.1	6	0.5	8	0.6	1	0.1
Subtotal		58	2.3	38	1.5	23	0.9	17	0.7	15	0.6
Total		305	5.4	264	4.7	207	3.7	158	2.8	164	2.9

Table continued

Table 24 continued

Group		GPA									
		3.00-3.09		3.10-3.19		3.20-3.29		3.30-3.39		3.40-3.49	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	53	7.0	75	9.9	69	9.1	63	8.3	43	5.7
	Mid	48	5.9	46	5.7	31	3.8	23	2.8	26	3.2
	Lo	24	4.0	20	3.3	17	2.8	12	2.0	5	0.8
Subtotal		125	5.8	141	6.5	117	5.4	98	4.5	74	3.4
WOMEN NONGRAD	Hi	21	4.1	16	3.1	22	4.3	14	2.7	17	3.3
	Mid	16	1.6	12	1.2	8	0.8	7	0.7	2	0.2
	Lo	18	1.9	2	0.2	5	0.5	3	0.3	1	0.1
Subtotal		55	2.2	30	1.2	35	1.4	24	1.0	20	0.8
Total		180	3.9	171	3.7	152	3.3	122	2.6	74	2.0
MEN GRAD	Hi	50	7.8	44	6.9	43	6.7	30	4.7	37	5.8
	Mid	56	4.0	43	3.1	37	2.6	36	2.6	23	1.6
	Lo	21	1.9	15	1.4	8	0.7	6	0.5	5	0.5
Subtotal		127	4.0	102	3.2	88	2.8	72	2.3	65	2.1
MEN NONGRAD	Hi	8	4.2	2	1.0	3	1.6	3	1.6	4	2.1
	Mid	7	0.7	8	0.8	3	0.3	2	0.2	3	0.3
	Lo	12	0.9	--	--	--	--	--	--	--	--
Subtotal		27	1.1	10	0.4	6	0.2	5	0.2	7	0.3
Total		154	2.7	112	2.0	94	1.7	77	1.4	72	1.3

Table continued

Appendix C

Table 24 continued

Group		GPA									
		3.50-3.59		3.60-3.69		3.70-3.79		3.80-3.89		3.90-4,00	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	55	7.3	26	3.4	29	3.8	26	3.4	4	0.5
	Mid	20	2.5	8	1.0	5	0.6	1	0.1	--	--
	Lo	6	1.0	1	0.2	1	0.2	1	0.2	--	--
Subtotal		81	3.7	35	1.6	35	1.6	28	1.3	4	0.2
WOMEN NONGRAD	Hi	5	1.0	10	2.0	8	1.6	2	0.4	3	0.6
	Mid	3	0.3	--	--	2	0.2	1	0.1	2	0.2
	Lo	3	0.3	--	--	--	--	--	--	--	--
Subtotal		11	0.4	10	0.4	10	0.4	3	0.1	5	0.2
Total		92	2.0	45	1.0	45	1.0	31	0.7	9	0.2
MEN GRAD	Hi	30	4.7	34	5.3	26	4.1	19	3.0	12	1.9
	Mid	17	1.2	11	0.8	6	0.4	6	0.4	2	0.1
	Lo	5	0.5	3	0.3	2	0.2	1	0.1	--	--
Subtotal		52	1.7	48	1.5	34	1.1	26	0.8	14	0.4
MEN NONGRAD	Hi	1	0.5	2	1.0					1	0.5
	Mid	2	0.5	1	0.1					--	--
	Lo	--	--	1	0.1					--	--
Subtotal		3	0.1	4	0.2					1	0.0
Total		55	1.0	52	0.9	34	0.6	26	0.5	15	0.3

Table continued

Table 24 continued

Group		GPA			
		No Ans		Total	
		f	%	f	%
WOMEN GRAD	Hi	--	--	757	34.9
	Mid	3	0.4	811	37.4
	Lo	--	--	601	27.7
Subtotal		3	0.1	2169	100.0
WOMEN NONGRAD	Hi			510	20.7
	Mid			1008	40.9
	Lo			946	38.4
Subtotal				2464	100.0
Total				4633	100.0
MEN GRAD	Hi			638	20.2
	Mid			1408	44.7
	Lo			1105	35.1
Subtotal				3151	100.1
MEN NONGRAD	Hi			192	7.7
	Mid			1001	39.9
	Lo			1314	52.4
Subtotal				2507	100.0
Total				5658	100.0

Appendix C

Table 25

Frequency and Percentage of Cumulative Grade Point Averages (GPA) for Women and Men Graduates and Nongraduates of Varying Ability

Group		GPA									
		0.00-0.49		0.50-0.99		1.00-1.49		1.50-1.99		2.00-2.49	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi							2	0.3	85	11.2
	Mid							7	0.9	213	26.3
	Lo							7	1.2	274	45.6
Subtotal		0	0.0	0	0.0	0	0.0	16	0.7	572	26.4
WOMEN NONGRAD	Hi	23	4.5	--	--	11	2.2	55	10.8	155	30.4
	Mid	66	6.5	19	1.9	105	10.4	285	28.3	329	32.6
	Lo	82	8.7	37	3.9	119	12.6	316	33.4	264	27.9
Subtotal		171	3.7	57	2.3	235	9.5	656	26.6	748	30.4
Total		171	3.7	57	1.2	237	5.1	672	14.5	1320	28.5
MEN GRAD	Hi							7	1.1	115	18.0
	Mid							28	2.0	665	47.2
	Lo							45	4.1	716	64.8
Subtotal		0	0.0	0	0.0	0	0.0	80	2.5	1496	47.5
MEN NONGRAD	Hi	9	4.7	1	0.5	14	7.3	45	23.4	68	35.4
	Mid	88	8.8	57	5.7	187	18.7	331	33.1	243	24.3
	Lo	181	13.8	90	6.8	278	21.2	482	36.7	219	16.7
Subtotal		278	11.1	148	5.9	479	19.1	858	34.2	530	21.1
Total		278	4.9	148	2.6	479	8.5	938	16.6	2026	35.8

Table continued

Appendix C

Table 25 continued

Group		GPA									
		2.50-2.99		3.00-3.49		3.50-4.00		No Ans		Total	
		f	%	f	%	f	%	f	%	f	%
WOMEN GRAD	Hi	227	30.0	303	40.0	140	18.5	--	--	757	34.9
	Mid	380	46.9	174	21.5	34	4.2	3	0.4	811	37.4
	Lo	233	38.8	78	13.0	9	1.5	--	--	601	27.7
Subtotal		840	38.7	555	25.6	183	8.4	3	0.1	2169	100.0
WOMEN NONGRAD	Hi	148	29.0	90	17.6	28	5.5			510	20.7
	Mid	151	15.0	45	4.5	8	0.8			1008	40.9
	Lo	96	10.1	29	3.1	3	0.3			946	38.4
Subtotal		395	16.0	164	6.7	39	1.6			2464	100.0
Total		1235	26.7	719	15.5	222	4.8			4633	100.0
MEN GRAD	Hi	191	29.9	204	32.0	121	19.0			638	20.2
	Mid	478	33.9	195	13.8	42	3.0			1408	44.7
	Lo	278	25.2	55	5.0	11	1.0			1105	35.1
Subtotal		947	30.1	454	14.4	174	5.5			3151	100.0
MEN NONGRAD	Hi	31	16.1	20	10.4	4	2.1			192	7.7
	Mid	69	6.9	23	2.3	3	0.3			1001	39.9
	Lo	51	3.9	12	0.9	1	0.1			1314	52.4
Subtotal		151	6.0	55	2.2	8	0.3			2507	100.0
Total		1098	19.4	509	9.0	182	3.2			5658	100.0

Appendix C

Table 26

Cumulative Grade Point Averages (GPA) Means and Standard Deviations for *Women* and *Men* Graduates of Varying Ability

Graduates		GPA N	 Mean	 SD
WOMEN	Hi	757	3.06[a,b,c]	.44
	Mid	811	2.74[d,e,f]	.41
	Lo	601	2.59[g,h,i]	.36
MEN	Hi	638	2.99[a,d,g]	.50
	Mid	1408	2.58[b,e,h]	.41
	Lo	1105	2.39[c,f,i]	.33

t	[a]2.73	[b]25.00	[c]37.17	[d]-15.81	[e]8.50
df	1393	2163	1860	1447	2217
p<	.005	.005	.005	.005	.005
t	[f]20.21	[g]-16.23	[h]0.179	[i]10.94	
df	1914	637	2007	1704	
p<	.005	.005		.005	

Appendix C

Table 27

Cumulative Grade Point Averages (GPA) Means and Standard Deviations for _Women_ and _Men_ Nongraduates of Varying Ability

Nongraduates		GPA		
		N	Mean	SD
WOMEN	Hi	510	$2.48^{a,b,c}$	.77
	Mid	1008	$1.95^{d,e,f}$	.74
	Lo	946	$1.78^{g,h,i}$	.74
MEN	Hi	192	$2.16^{a,d,g}$	.74
	Mid	1001	$1.69^{b,e,h}$	.71
	Lo	1314	$1.47^{c,f,i}$	.72

t	$^{a}4.08$	$^{b}25.08$	$^{c}26.16$	$^{d}3.84$	$^{e}8.31$
df	700	1510	1822	1190	2007
p<	.005	.005	.005	.005	.005
t	$^{f}14.98$	$^{g}6.48$	$^{h}2.76$	$^{i}9.40$	
df	2320	1136	1945	2258	
p<	.005	.005	.005	.005	

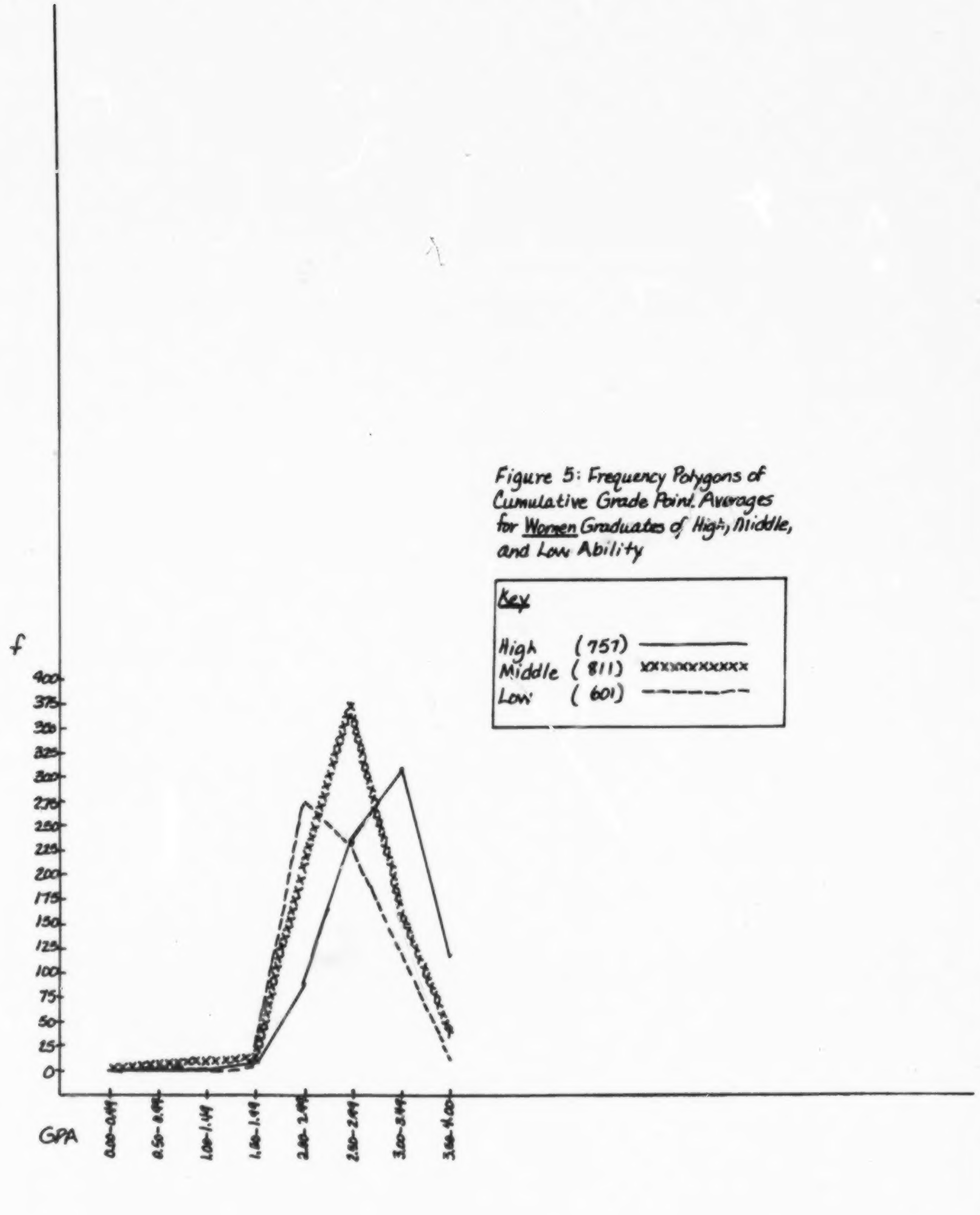


Figure 5: Frequency Polygons of Cumulative Grade Point Averages for Women Graduates of High, Middle, and Low Ability

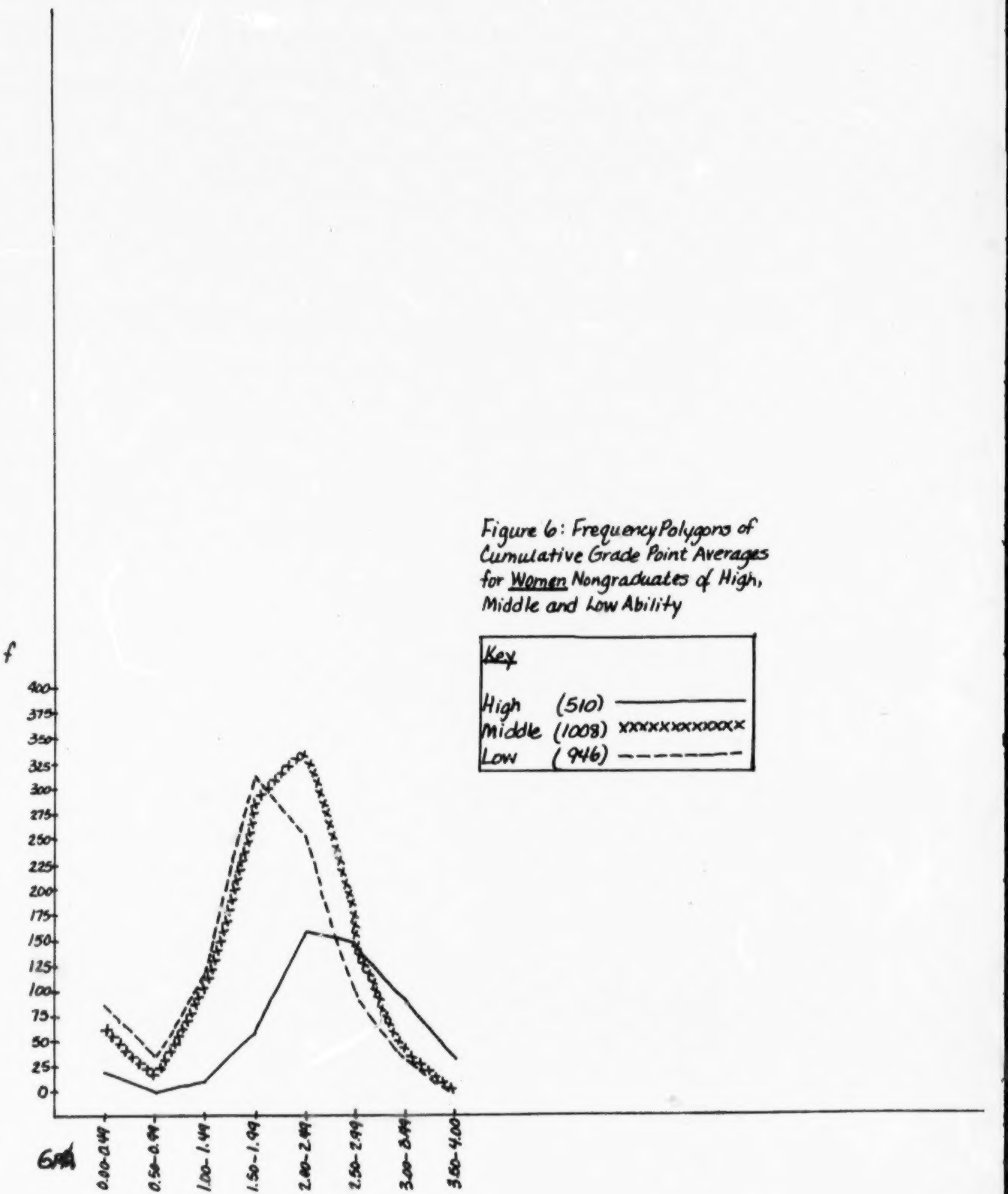


Figure 6: Frequency Polygons of Cumulative Grade Point Averages for Women Nongraduates of High, Middle and Low Ability

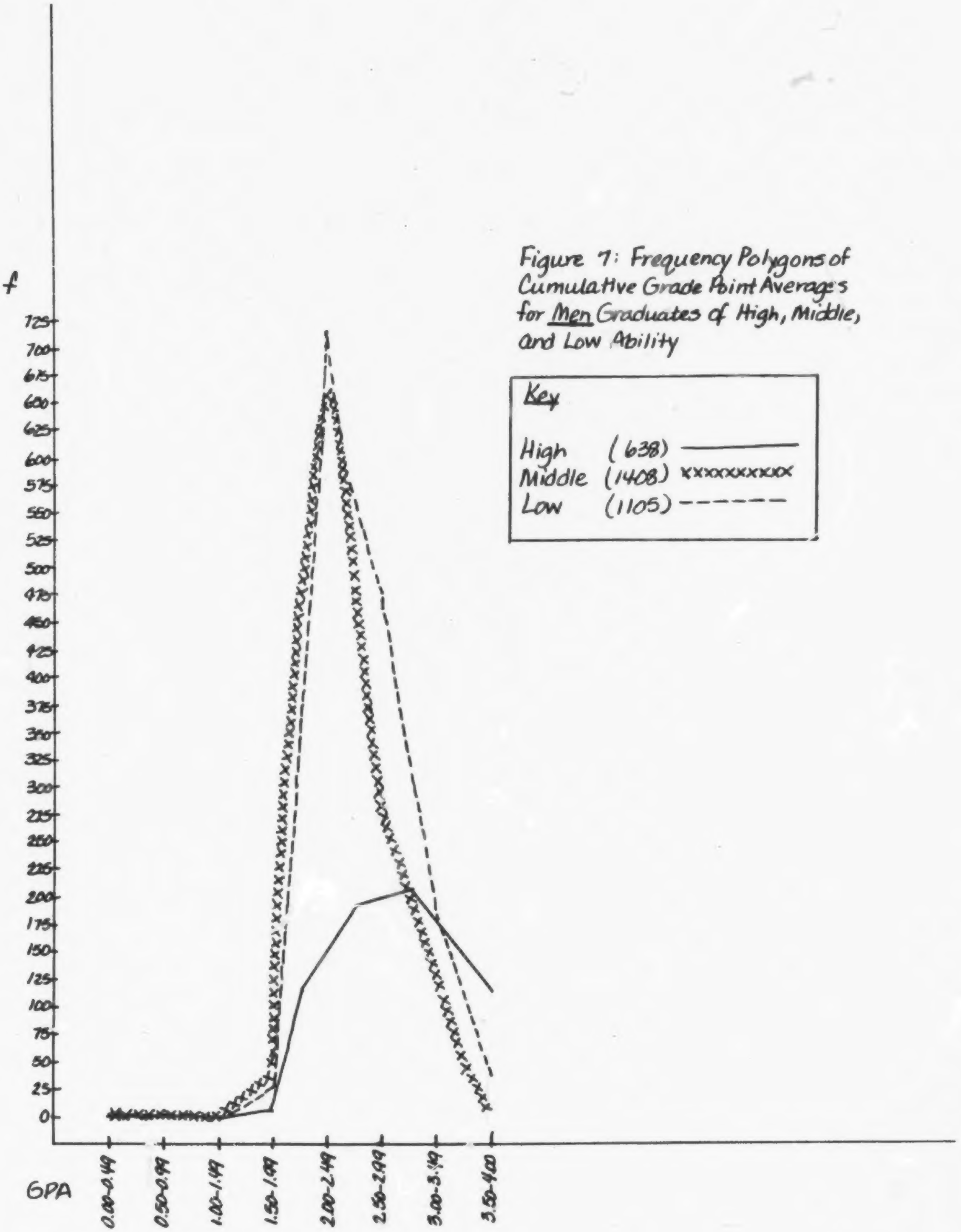


Figure 7: Frequency Polygons of Cumulative Grade Point Averages for *Men* Graduates of High, Middle, and Low Ability

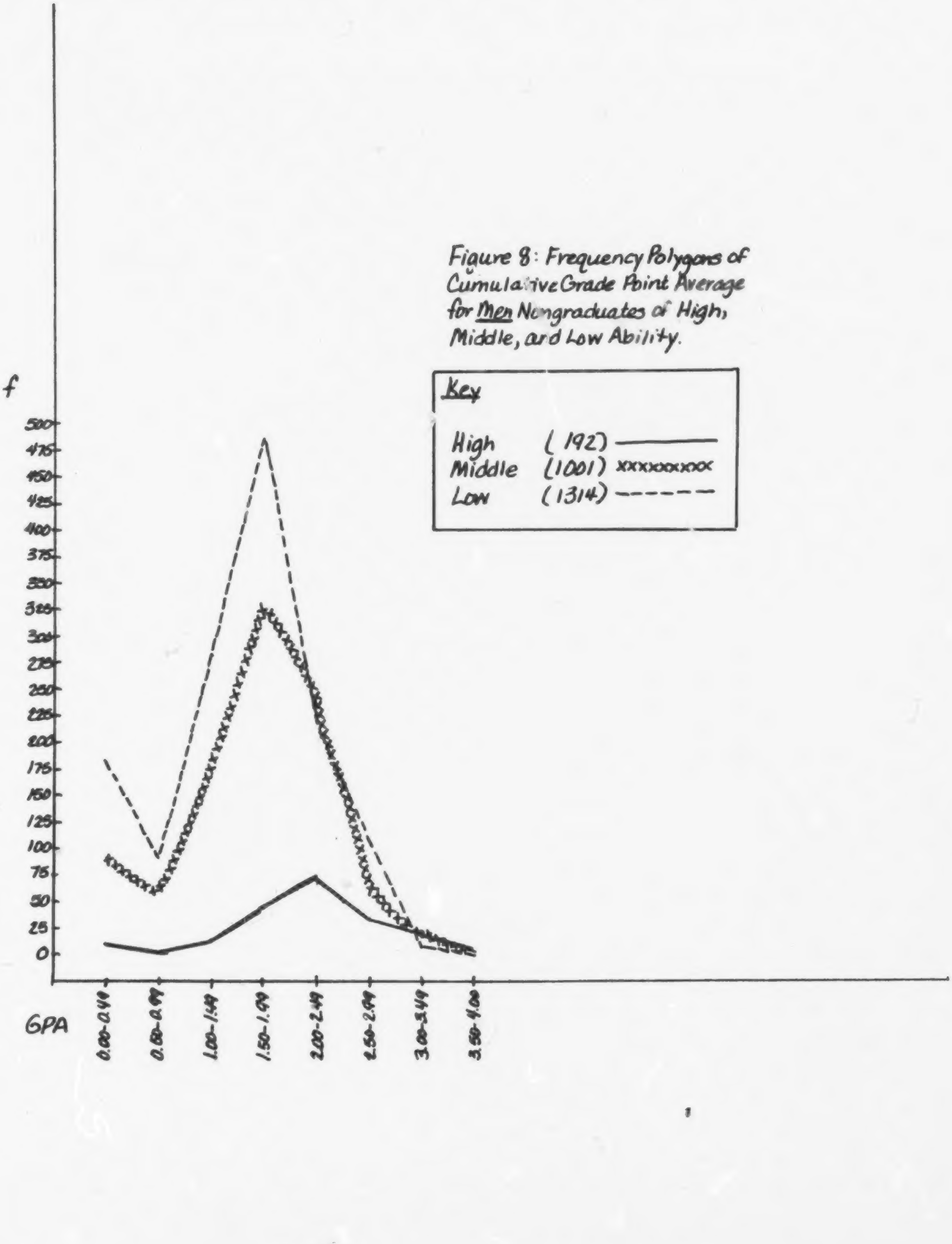


Figure 8: Frequency Polygons of Cumulative Grade Point Average for Men Nongraduates of High, Middle, and Low Ability.

Appendix C

Table 28

Frequency and Percentage of Kinds of Honors Earned at Graduation from the University of Minnesota for Women and Men Graduates of Varying Ability

Graduates		Honors														Total Graduates	
		Summa Cum Laude[a]		Magna Cum Laude[a]		Cum Laude[a]		High Distinction		Distinction[b]		Double Honors[c]		No Honors			
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
WOMEN	Hi	15	2.0	80	10.6	92	12.2	49	6.5	152	20.1	5	0.7	364	48.1	757	34.9
(N=2169)	Mid	1	0.1	21	2.6	51	7.0	20	2.5	89	11.0	-	-	623	76.8	811	37.4
	Lo	2	0.3	3	0.5	21	3.5	4	0.7	50	8.3	-	-	521	86.7	601	27.7
Subtotal		18	0.8	104	4.8	170	7.8	73	3.4	291	13.4	5	0.2	1508	69.5	2169	100.0
MEN	Hi	18	2.8	80	12.5	80	12.5	28	4.4	45	7.1	-	-	387	60.7	638	20.2
(N=3151)	Mid	18	1.3	35	2.5	68	4.8	16	1.1	56	4.0	-	-	1214	86.2	1408	44.7
	Lo	7	0.6	7	0.6	19	1.7	2	0.2	16	1.4	-	-	1053	95.3	1105	35.1
Subtotal		43	1.4	122	3.9	167	5.3	46	1.5	117	3.7	-	-	2654	84.2	3149	100.0
TOTAL		61	1.0	226	4.2	337	6.3	119	2.2	408	7.7	5	0.1	4162	78.2	5318[d]	100.0

[a] Honors conferred by the College of Liberal Arts (CLA) and the University College.

[b] Honors conferred by all other colleges and schools within the University.

[c] Honors conferred by CLA and Education (double degree program).

[d] No Answer = 2.

Appendix C

Table 29

Frequency and Percentage of Graduation with Honors for Women and Men Graduates of Varying Ability

Graduates		Honors		No Honors		Total	
		f	%	f	%	f	%
WOMEN	Hi	393	51.9[a,c,e,g,i]	364	48.1[b,d,f,h,j]	757	34.9
	Mid	188	23.2[a,k,m,o,q]	623	76.8[b,l,n,p,q]	811	37.4
	Lo	80	13.3[c,k,s,u]	521	86.7[d,l,t,v]	601	27.7
Subtotal		661	30.5	1508	69.5	2169	100.0
MEN	Hi	251	39.3[e,m,s,w,y]	387	60.7[f,n,t,x,z]	638	20.2
	Mid	193	13.7[g,o,w,A]	1214	86.3[h,p,x,B]	1407	44.7
	Lo	51	4.6[i,r,u,y,A]	1053	95.4[j,r,v,z,B]	1104	35.1
Subtotal		495	15.8	2654	84.2	3149*	100.0
Total		1156	21.7	4162	78.2	5318*	100.0

$\chi^2 = 790.90$ df = 5 $p < .00001$

* No Answer = two

z	a,b ±11.77	c,d ±14.83	e,f ±4.69	g,h ±19.07	i,j ±23.52
p<	.0001	.0001	.0001	.0001	.0001
z	k,l ±4.68	m,n ±6.65	o,p ±5.69	q,r ±12.14	s,t ±10.35
p<	.0001	.0001	.0001	.0001	.0001
z	u,v ±6.44	w,x ±13.02	y,z ±18.44	A,B ±7.64	
p<	.0001	.0001	.0001	.0001	

Appendix C

Table 30

Contact with the Student Counseling Bureau (University of Minnesota) for Women and Men Graduates of Varying Ability

Graduates		SCB Contact					
		Contact		No Contact		Total	
		f	%	f	%	f	%
WOMEN	Hi	327	43.2[a,c]	430	56.8[b,d]	757	34.9
	Mid	324	40.0[e,g,i]	487	60.0[f,h,j]	811	37.4
	Lo	252	41.9[k,m,o]	349	58.1[l,n,p]	601	27.7
Subtotal		903	41.6	1266	58.4	2169	100.0
MEN	Hi	329	51.6[a,e,k,q]	309	48.4[b,f,l,r]	638	20.2
	Mid	663	47.1[g,m,s]	745	52.9[h,n,t]	1408	44.7
	Lo	642	58.1[c,i,o,q,s]	463	41.9[d,j,p,r,t]	1105	35.1
Subtotal		1634	51.9	1517	48.1	3151	100.0
Total		2537	47.7	2783	52.3	5320	100.0

$\chi^2 = 85.64$ df = 5 $p <$ .00001

	a,b	c,d	e,f	g,h	i,j
z	±3.12	±6.32	±4.41	±3.26	±7.85
p<	.001	.0001	.0001	.001	.0001

	k,l	m,n	o,p	q,r	s,t
z	±3.40	±2.13	±6.39	±2.64	±5.48
p<	.001	.05	.0001	.01	.0001

Appendix C

Table 31

Contact with the Student Counseling Bureau (University of Minnesota) for Women and Men Nongraduates of Varying Ability

Nongraduates	SCB Contact Contact f	 %	 No Contact f	 %	 Total f	 %
WOMEN Hi	160	31.4^{a,c,q}	350	68.6^{b,d,r}	510	20.7
Mid	294	29.2^{e,g,i}	714	70.8^{f,h,j}	1008	40.9
Lo	240	25.4^{k,m,o,q}	706	74.6^{l,n,p,r}	946	38.4
Subtotal	694	28.2	1770	71.8	2464	100.0
MEN Hi	81	42.2^{a,e,k}	111	57.8^{b,f,l}	192	7.7
Mid	363	36.3^{g,m}	638	63.7^{h,n}	1001	39.9
Lo	497	37.8^{c,i,o}	817	62.2^{d,j,p}	1314	52.4
Subtotal	941	37.5	1566	62.5	2507	100.0
Total	1635	32.9	3336	67.1	4971	100.0

	$\chi^2 = 58.27$		df = 5		$p < .00001$
z p<	$^{a,b}\pm 2.69$ .01	$^{c,d}\pm 2.58$ .01	$^{e,f}\pm 3.58$ .001	$^{g,h}\pm 3.39$ .001	$^{i,j}\pm 4.36$ .0001
z p<	$^{k,l}\pm 4.72$ .0001	$^{m,n}\pm 5.20$ .0001	$^{o,p}\pm 6.23$ .0001	$^{q,r}\pm 2.45$ .05	

APPENDIX D

Appendix D

Table 32

Minnesota Multiphasic Personality Inventory (MMPI) Mean Scores and Standard Deviations for Women and Men Graduates of Varying Ability

Graduates			MMPI Scales							
			L			F			K	
			$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.
WOMEN	Hi	(757)	48	$3.58^{a,b,c}$	1.90	49	$2.93^{a,b,c}$	2.50	57	$16.38^{a,b,c}$	4.09
	Mid	(811)	48	$3.57^{d,e,f}$	1.93	49	$2.88^{d,e,f}$	2.35	57	$16.19^{d,e,f}$	4.25
	Lo	(601)	48	$3.65^{g,h,i}$	1.97	50	$3.12^{g,h,i}$	2.66	57	$16.09^{g,h,i}$	4.35
MEN	Hi	(638)	45	$2.91^{a,d,g}$	1.90	50	$3.04^{a,d,g}$	2.49	55	$15.44^{a,d,g}$	4.34
	Mid	(1408)	45	$2.98^{b,e,h}$	1.90	51	$3.46^{b,e,h}$	2.58	55	$15.36^{b,e,h}$	4.34
	Lo	(1105)	46	$3.19^{c,f,i}$	1.91	52	$3.66^{c,f,i}$	2.76	56	$15.76^{c,f,i}$	4.51

	L				F				K			
t	$^{a}6.51$	$^{b}7.01$	$^{c}4.30$	$^{d}6.46$	$^{a}-0.76$	$^{b}-4.54$	$^{c}-5.82$	$^{d}-1.22$	$^{a}4.14$	$^{b}5.33$	$^{c}3.01$	$^{d}3.26$
df	1393	2163	1860	1447	1393	2163	1860	1447	1393	2163	1860	1447
p<	.001	.001	.001	.001		.001	.001		.001	.001	.01	.01
t	$^{e}7.02$	$^{f}4.25$	$^{g}6.71$	$^{h}7.19$	$^{e}-5.22$	$^{f}-6.53$	$^{g}0.55$	$^{h}-2.67$	$^{e}4.35$	$^{f}2.07$	$^{g}2.61$	$^{h}3.46$
df	2217	1914	1237	2007	2217	1914	1237	2007	2217	1914	1237	2007
p<	.001	.001	.001	.001	.001	.001		.01	.001	.05	.01	.001
t	$^{i}4.68$				$^{i}-3.96$				$^{i}1.45$			
df	1704				1704				1704			
p<	.001				.001							

Table continued

Appendix D

Table 32 continued

Graduates			MMPI Scales 1				MMPI Scales 2				MMPI Scales 3			
			$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.		$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.		$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	
WOMEN	Hi	(757)	48	12.29^{a,b,c}	2.90		47	18.40^{a,b,c}	4.32		53	20.78^{a,b,c}	4.08	
	Mid	(811)	48	12.34^{d,e,f}	3.21		47	18.26^{d,e,f}	4.19		53	20.74^{d,e,f}	3.96	
	Lo	(601)	49	12.77^{g,h,i}	3.82		49	18.80^{g,h,i}	4.35		54	21.25^{g,h,i}	4.31	
MEN	Hi	(638)	51	11.92^{a,d,g}	3.01		51	17.23^{a,d,g}	4.25		56	19.68^{a,d,g}	4.05	
	Mid	(1408)	52	12.34^{b,e,h}	3.74		49	16.76^{b,e,h}	4.22		55	19.22^{b,e,h}	3.96	
	Lo	(1105)	58	14.85^{c,f,i}	5.12		52	17.53^{c,f,i}	4.40		56	19.66^{c,f,i}	4.06	
t			^{a}2.30	^{b}-0.35	^{c}-12.51	^{d}2.52	^{a}5.04	^{b}8.53	^{c}4.20	^{d}4.59	^{a}5.06	^{b}8.67	^{c}5.88	^{d}5.01
df			1393	2163	1860	1447	1393	2163	1860	1447	1393	2163	1860	1447
p<			.05		.001	.02	.001	.001	.001	.001	.001	.001	.001	.001
t			^{e}-0.02	^{f}-12.34	^{g}4.33	^{h}2.31	^{e}8.08	^{f}3.64	^{g}6.40	^{h}9.82	^{e}8.71	^{f}5.84	^{g}6.60	^{h}10.22
df			2217	1914	1237	2007	2217	1914	1237	2007	2217	1914	1237	2007
p<				.001	.001	.02	.001	.001	.001	.001	.001	.001	.001	.001
t			^{i}-8.77				^{i}5.70				^{i}7.57			
df			1704				1704				1704			
p<			.001				.001				.001			

Table continued

Appendix D

Table 32 continued

Graduates			MMPI Scales 4 $\bar{X}$ T	4 $\bar{X}$ R.S.	4 SD R.S.	5 $\bar{X}$ T	5 $\bar{X}$ R.S.	5 SD R.S.	6 $\bar{X}$ T	6 $\bar{X}$ R.S.	6 SD R.S.
WOMEN	Hi	(757)	54	$20.62^{a,b,c}$	3.77	47	$38.11^{a,b,c}$	4.38	55	$9.90^{a,b,c}$	2.77
	Mid	(811)	54	$20.69^{d,e,f}$	3.54	48	$37.68^{d,e,f}$	4.59	54	$9.50^{d,e,f}$	2.88
	Lo	(601)	55	$21.18^{g,h,i}$	3.92	49	$37.32^{g,h,i}$	4.49	53	$9.43^{g,h,i}$	2.73
MEN	Hi	(638)	55	$21.09^{a,d,g}$	4.08	61	$26.17^{a,d,g}$	5.23	54	$9.46^{a,d,g}$	2.84
	Mid	(1408)	57	$22.19^{b,e,h}$	4.55	58	$24.77^{b,e,h}$	5.08	53	$9.12^{b,e,h}$	2.91
	Lo	(1105)	62	$24.26^{c,f,i}$	5.16	57	$24.32^{c,f,i}$	5.23	53	$9.20^{c,f,i}$	2.90

	4				5				6			
t	${}^{a}-2.19$	${}^{b}-8.08$	${}^{c}-16.58$	${}^{d}-1.98$	${}^{a}46.42$	${}^{b}61.09$	${}^{c}59.64$	${}^{d}44.56$	${}^{a}2.90$	${}^{b}6.10$	${}^{c}5.19$	${}^{d}0.26$
df	1393	2163	1860	1447	1393	2163	1860	1447	1393	2163	1860	1447
p<	.05	.001	.001	.05	.001	.001	.001	.001	.01	.001	.001	
t	${}^{e}-8.08$	${}^{f}-16.98$	${}^{g}0.40$	${}^{h}-4.78$	${}^{e}59.69$	${}^{f}58.15$	${}^{g}40.18$	${}^{h}52.47$	${}^{e}3.06$	${}^{f}2.25$	${}^{g}0.16$	${}^{h}2.34$
df	2217	1914	1237	2007	2217	1914	1237	2007	2217	1914	1237	2007
p<	.001	.00		.001	.001	.001	.001	.001	.01	.05		.02
t	${}^{i}-12.78$				${}^{i}51.51$				${}^{i}1.63$			
df	1704				1704				1704			
p<	.001				.001							

Table continued

Appendix D

Table 32 continued

Graduates		MMPI Scales											
		7				8				9			
		$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.		$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.		$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	
WOMEN	Hi (757)	52	26.91^{a,b,c}	4.84		55	25.54^{a,b,c}	4.76		53	18.39^{a,b,c}	3.86	
	Mid (811)	53	27.25^{d,e,f}	5.37		54	25.15^{d,e,f}	4.97		54	18.67^{d,e,f}	4.11	
	Lo (601)	55	28.20^{g,h,i}	5.21		55	26.07^{g,h,i}	5.53		55	19.17^{g,h,i}	3.91	
MEN	Hi (638)	55	25.95^{a,d,g}	4.98		54	24.92^{a,d,g}	5.14		54	18.76^{a,d,g}	4.17	
	Mid (1408)	58	27.13^{b,e,h}	6.50		58	26.59^{b,e,h}	6.76		57	19.82^{b,e,h}	4.19	
	Lo (1105)	69	32.24^{c,f,i}	9.66		67	31.25^{c,f,i}	9.82		59	20.60^{c,f,i}	4.21	
t		^{a}3.64	^{b}-0.83	^{c}-14.04	^{d}4.72	^{a}2.34	^{b}-3.79	^{c}-14.85	^{d}0.85	^{a}-1.68	^{b}-7.78	^{c}-11.47	
df		1393	2163	1860	1447	1393	2163	1860	1447	1393	2163	1860	
p<		.001		.001	.001	.02	.001	.001			.001	.001	
t		^{e}0.44	^{f}-13.29	^{g}7.79	^{h}3.60	^{e}-5.30	^{f}-16.24	^{g}3.80	^{h}-1.66	^{d}-0.38	^{e}-6.28	^{f}-9.99	
df		2217	1914	1237	2007	2217	1914	1237	2007	1447	2217	1914	
p<			.001	.001	.001	.001	.00	.001			.001	.001	
t		^{i}-9.52				^{i}-11.94				^{g}1.80	^{h}-3.26	^{i}-6.85	
df		1704				1704				1237	2007	1704	
p<		.001				.001					.001	.001	

Table continued

Table 32 continued

Graduates		MMPI Scales 10 $\bar{X}$ T	 $\bar{X}$ R.S.	 SD R.S.	
WOMEN	Hi (757)	50	$24.73^{a,b,c}$	9.26	
	Mid (811)	49	$23.59^{d,e,f}$	8.76	
	Lo (601)	49	$24.10^{g,h,i}$	8.28	
MEN	Hi (638)	49	$23.84^{a,d,g}$	9.41	
	Mid (1408)	48	$22.62^{b,e,h}$	9.12	
	Lo (1105)	48	$23.31^{c,f,i}$	9.34	
t		$^{a}1.79$	$^{b}5.12$	$^{c}3.25$	$^{d}0.58$
df		1393	2163	1860	1447
$p<$			.001	.001	
t		$^{e}2.37$	$^{f}0.60$	$^{g}0.52$	$^{h}3.43$
df		2217	1914	1237	2007
$p<$		.01			.001
t		$^{i}1.75$			
df		1704			
$p<$					

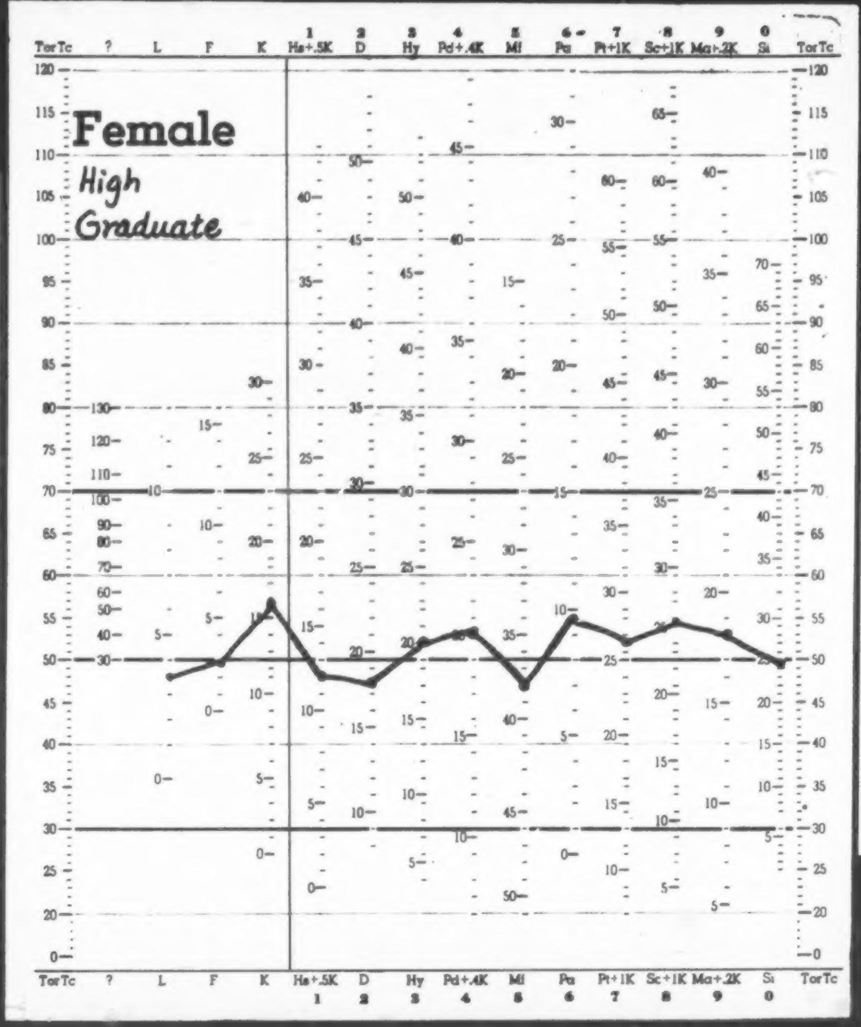


Figure 9: Freshman Mean MMPI Profile for High Ability Women Graduates

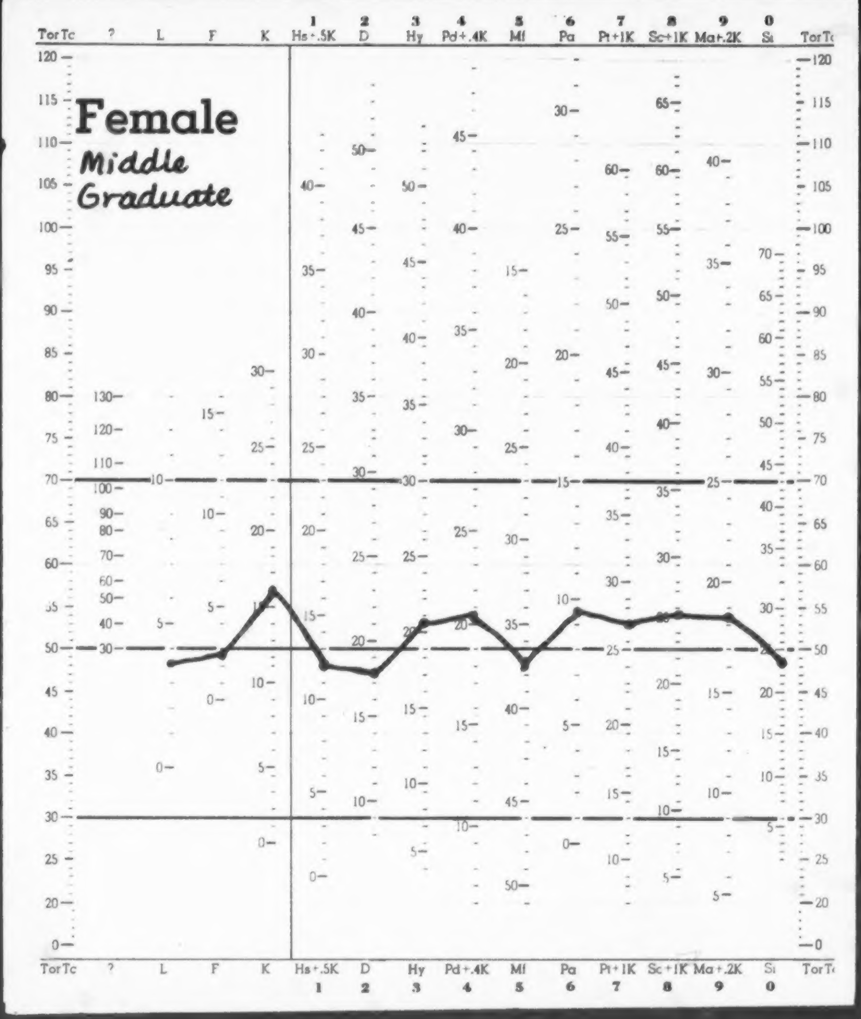


Figure 10: Freshman Mean MMPI Profile for Middle Ability Women Graduates

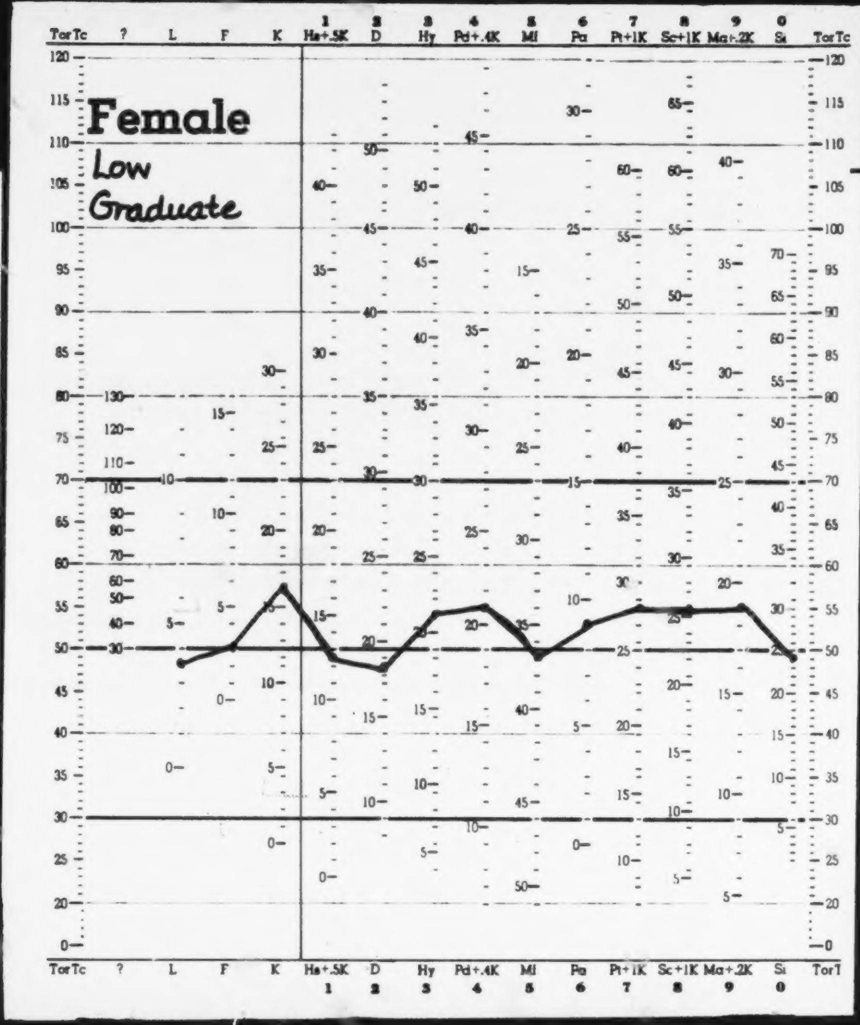


Figure 11: Freshman Mean MMPI Profile for Low Ability Women Graduates

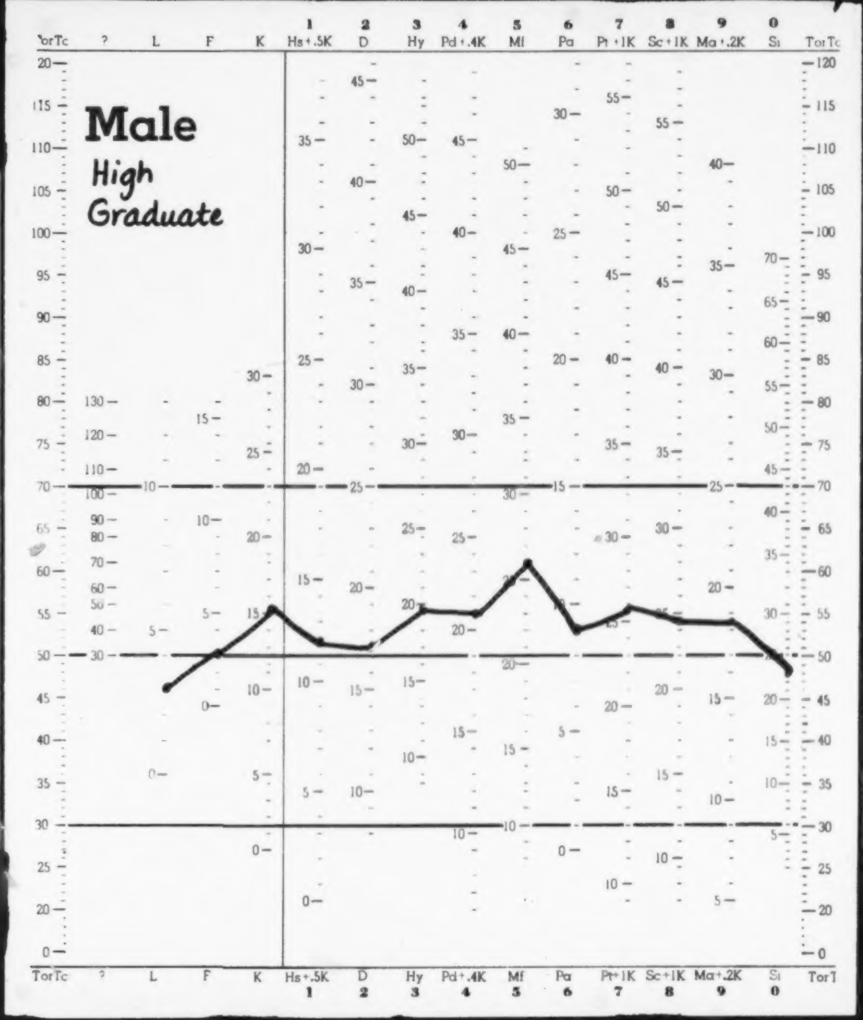


Figure 12: Freshman Mean MMPI Profile for High Ability Men Graduates

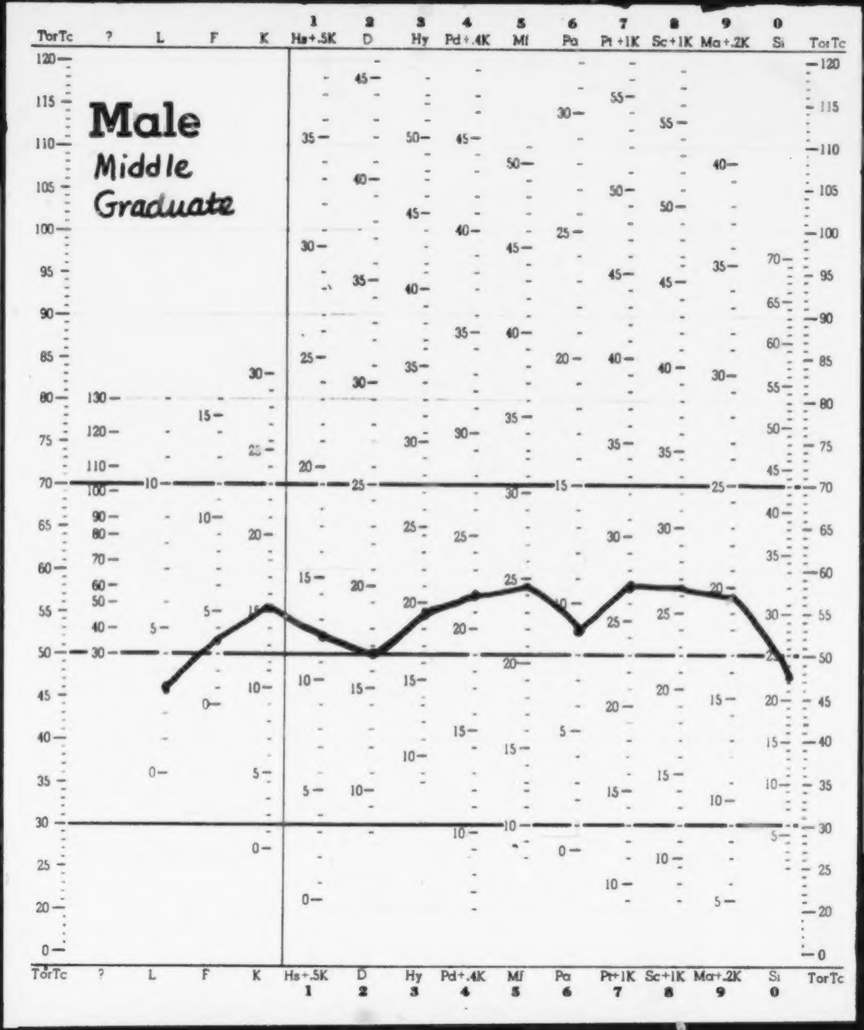


Figure 13: Freshman Mean MMPI Profile for Middle Ability Men Graduates

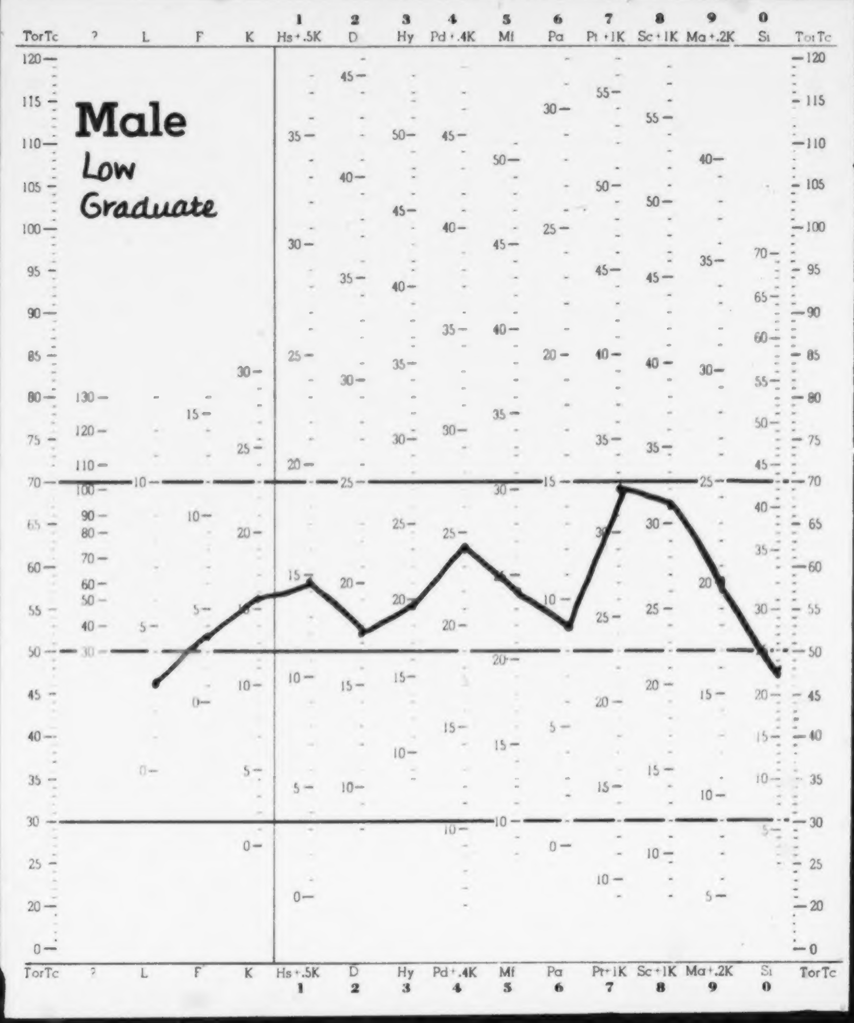


Figure 14: Freshman Mean MMPI Profile for Low Ability Men Graduates

Appendix D

Table 35

Minnesota Multiphasic Personality Inventory (MMPI) Mean Scores and Standard Deviations for Women and Men Nongraduates of Varying Ability

Nongraduates			MMPI Scales L $\bar{X}$ T	L $\bar{X}$ R.S.	L SD R.S.	F $\bar{X}$ T	F $\bar{X}$ R.S.	F SD R.S.	K $\bar{X}$ T	K $\bar{X}$ R.S.	K SD R.S.
WOMEN	Hi	(510)	47	$3.26^{a,b,c}$	1.89	49	$2.95^{a,b,c}$	2.45	56	$15.82^{a,b,c}$	4.15
	Mid	(1008)	47	$3.27^{d,e,f}$	1.87	50	$3.06^{d,e,f}$	2.37	55	$15.36^{d,e,f}$	4.14
	Lo	(946)	48	$3.56^{g,h,i}$	2.03	51	$3.41^{g,h,i}$	2.74	55	$15.26^{g,h,i}$	4.45
MEN	Hi	(192)	46	$3.11^{a,d,g}$	1.77	51	$3.25^{a,d,g}$	2.35	55	$15.26^{a,d,g}$	4.53
	Mid	(1001)	46	$3.05^{b,e,h}$	1.94	52	$3.68^{b,e,h}$	2.68	55	$15.12^{b,e,h}$	4.36
	Lo	(1314)	46	$3.17^{c,f,i}$	1.95	52	$3.88^{c,f,i}$	2.80	54	$14.79^{c,f,i}$	4.59

	L				F				K			
t	$^{a}0.95$	$^{b}1.96$	$^{c}0.88$	$^{d}1.07$	$^{a}-1.49$	$^{b}-5.17$	$^{c}-6.59$	$^{d}-1.07$	$^{a}1.53$	$^{b}2.99$	$^{c}4.40$	$^{d}0.30$
df	700	1509	1822	1198	700	1509	1822	1198	700	1509	1822	1198
$p <$		.05				.001	.001			.01	.001	
t	$^{e}2.51$	$^{f}1.21$	$^{g}2.85$	$^{h}5.61$	$^{e}-5.55$	$^{f}-7.51$	$^{g}0.74$	$^{h}-2.20$	$^{e}1.29$	$^{f}3.12$	$^{g}1.01$	$^{h}2.51$
df	2007	2320	1136	1945	2007	2320	1136	1945	2007	2320	1136	1945
$p <$	.02		.01	.001	.001	.001		.05		.01		.02
t	$^{i}4.59$				$^{i}-3.95$				$^{i}7.01$			
df	2258				2258				2258			
$p <$	.001				.001				.001			

Table continued

Table 35 continued

Nongraduates			MMPI Scales							
			1			2			3	
			$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.
WOMEN	Hi	(510)	49	12.58^{a,b,c}	3.29	47	18.46^{a,b,c}	4.20	54	21.26^{a,b,c}	4.37
	Mid	(1008)	48	12.35^{d,e,f}	3.18	47	18.37^{d,e,f}	4.14	53	20.65^{d,e,f}	4.23
	Lo	(946)	49	12.59^{g,h,i}	3.09	48	18.86^{g,h,i}	4.24	54	21.35^{g,h,i}	4.24
MEN	Hi	(192)	51	11.61^{a,d,g}	3.34	48	16.42^{a,d,g}	3.81	56	19.60^{a,d,g}	4.34
	Mid	(1001)	52	12.44^{b,e,h}	3.84	49	16.63^{b,e,h}	4.07	55	19.36^{b,e,h}	4.66
	Lo	(1314)	57	14.18^{c,f,i}	5.04	51	17.31^{c,f,i}	4.27	55	19.18^{c,f,i}	4.01
t			^{a}3.45 ^{b}0.69 ^{c}-6.68 ^{d}2.92			^{a}5.85 ^{b}8.16 ^{c}5.16 ^{d}6.02			^{a}4.50 ^{b}7.69 ^{c}9.71 ^{d}3.14		
df			700 1509 1882 1198			700 1509 1822 1198			700 1509 1822 1198		
p<			.001 — .001 .01			.001 .001 .001 .001			.001 .001 .001 .01		
t			^{e}-0.57 ^{f}-10.12 ^{g}3.97 ^{h}0.99			^{e}9.47 ^{f}5.97 ^{g}7.37 ^{h}11.82			^{e}6.53 ^{f}8.56 ^{g}5.20 ^{h}9.88		
df			2007 2320 1136 1945			2007 2320 1136 1945			2007 2320 1136 1945		
p<			— .001 .001 —			.001 .001 .001 .001			.001 .001 .001 .001		
t			^{i}-8.61			^{i}8.51			^{i}12.41		
df			2258			2258			2258		
p<			.001			.001			.001		

Table continued

Appendix D

Table 35 continued

Nongraduates			MMPI Scales 4			5			6	
			$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.	$\bar{X}$ T	$\bar{X}$ R.S.	SD R.S.
WOMEN	Hi	(510)	55	$21.34^{a,b,c}$	4.26	47	$38.35^{a,b,c}$	4.49	55	$9.90^{a,b,c}$	2.80
	Mid	(1008)	55	$21.02^{d,e,f}$	3.97	48	$37.66^{d,e,f}$	4.95	54	$9.47^{d,e,f}$	2.80
	Lo	(946)	56	$21.66^{g,h,i}$	4.14	49	$37.01^{g,h,i}$	4.24	55	$9.86^{g,h,i}$	4.93
MEN	Hi	(192)	56	$21.70^{a,d,g}$	4.12	60	$24.45^{a,d,g}$	5.44	52	$9.64^{a,d,g}$	2.85
	Mid	(1001)	57	$22.30^{b,e,h}$	4.55	57	$24.04^{b,e,h}$	5.02	50	$9.01^{b,e,h}$	2.70
	Lo	(1314)	60	$24.01^{c,f,i}$	5.33	55	$23.08^{c,f,i}$	4.90	49	$8.92^{c,f,i}$	2.74

	4				5			6			
t	^{a}-1.02	^{b}-3.98	^{c}-10.12	^{d}-2.18	^{a}31.71	^{b}53.90	^{c}60.71	^{a}1.07	^{b}6.01	^{c}6.81	^{d}-0.79
df	700	1509	1822	1198	700	1509	1822	700	1509	1822	1198
p<		.001	.001	.05	.001	.001	.001		.001	.001	
t	^{e}-6.74	^{f}-14.90	^{g}-0.13	^{h}-3.24	^{d}30.81	^{e}61.25	^{f}70.75	^{e}3.79	^{f}4.75	^{g}0.58	^{h}4.77
df	2007	2320	1945	1945	1198	2007	2320	2007	2320	1136	1945
p<	.001	.001	.01	.01	.001	.001	.001	.001	.001		.001
t	^{i}-11.29				^{g}32.73	^{h}61.47	^{i}70.50	^{i}5.78			
df	2258				1136	1945	2258	2258			
p<	.001				.001	.001	.001	.001			

Table continued

Appendix D

Table 35 continued

Nongraduates			MMPI Scales 7 $\bar{X}$ T	 $\bar{X}$ R.S.	 SD R.S.	 8 $\bar{X}$ T	 $\bar{X}$ R.S.	 SD R.S.	 9 $\bar{X}$ T	 $\bar{X}$ R.S.	 SD R.S.
WOMEN	Hi	(510)	53	27.37^{a,b,c}	4.59	54	25.70^{a,b,c}	5.19	54	18.92^{a,b,c}	4.00
	Mid	(1008)	53	27.44^{d,e,f}	4.65	54	25.59^{d,e,f}	4.90	55	19.15^{d,e,f}	3.97
	Lo	(946)	54	27.90^{g,h,i}	4.78	55	26.03^{g,h,i}	5.47	57	19.62^{g,h,i}	5.18
MEN	Hi	(192)	54	25.49^{a,d,g}	4.20	55	25.03^{a,d,g}	4.43	57	19.79^{a,d,g}	3.91
	Mid	(1001)	58	27.32^{b,e,h}	6.71	58	26.92^{b,e,h}	6.95	58	20.18^{b,e,h}	4.23
	Lo	(1314)	66	31.20^{c,f,i}	8.96	66	30.54^{c,f,i}	9.27	60	21.14^{c,f,i}	4.39

t	^{a}4.94	^{b}0.15	^{c}-9.19	^{d}5.38	^{a}1.60	^{b}-3.50	^{c}-11.12	^{d}1.49	^{a}-2.59	^{b}-5.59	^{c}-9.95
df	700	1509	1822	1198	700	1509	1822	1198	700	1509	1822
p<	.001		.001	.001		.001	.001		.01	.001	.001
t	^{e}0.45	^{f}-12.14	^{g}6.48	^{h}2.18	^{e}-4.97	^{f}-15.37	^{g}2.39	^{h}-3.14	^{d}-2.06	^{e}-5.64	^{f}-11.29
df	2007	2320	1136	1945	2007	2320	1136	1945	1198	2007	2320
p<		.001	.001	.001	.001	.001	.02	.01	.05	.001	.001
t	^{i}-10.32				^{i}-13.37				^{g}-0.43	^{h}-2.62	^{i}-7.53
df	2258				2258				1136	1945	2258
p<	.001				.001					.01	.001

Table continued

Appendix D

Table 35 continued

Nongraduates	MMPI Scales 10 $\bar{X}$ T	 $\bar{X}$ R.S.		 SD R.S.
WOMEN Hi (510)	49	24.51[a,b,c]		8.98
Mid (1008)	48	23.97[d,e,f]		8.67
Lo (946)	48	23.57[g,h,i]		8.77
MEN Hi (192)	47	22.31[a,d,g]		8.91
Mid (1001)	47	22.49[b,e,h]		8.69
Lo (1314)	47	22.97[c,f,i]		8.83
t	[a]2.91	[b]4.24	[c]3.34	[d]2.42
df	700	1509	1822	1198
p<	.01	.001	.001	.02
t	[e]3.81	[f]2.72	[g]1.82	[h]2.73
df	2007	2320	1136	1945
p<	.001	.01		.01
t	[i]1.60			
df	2258			
p<				

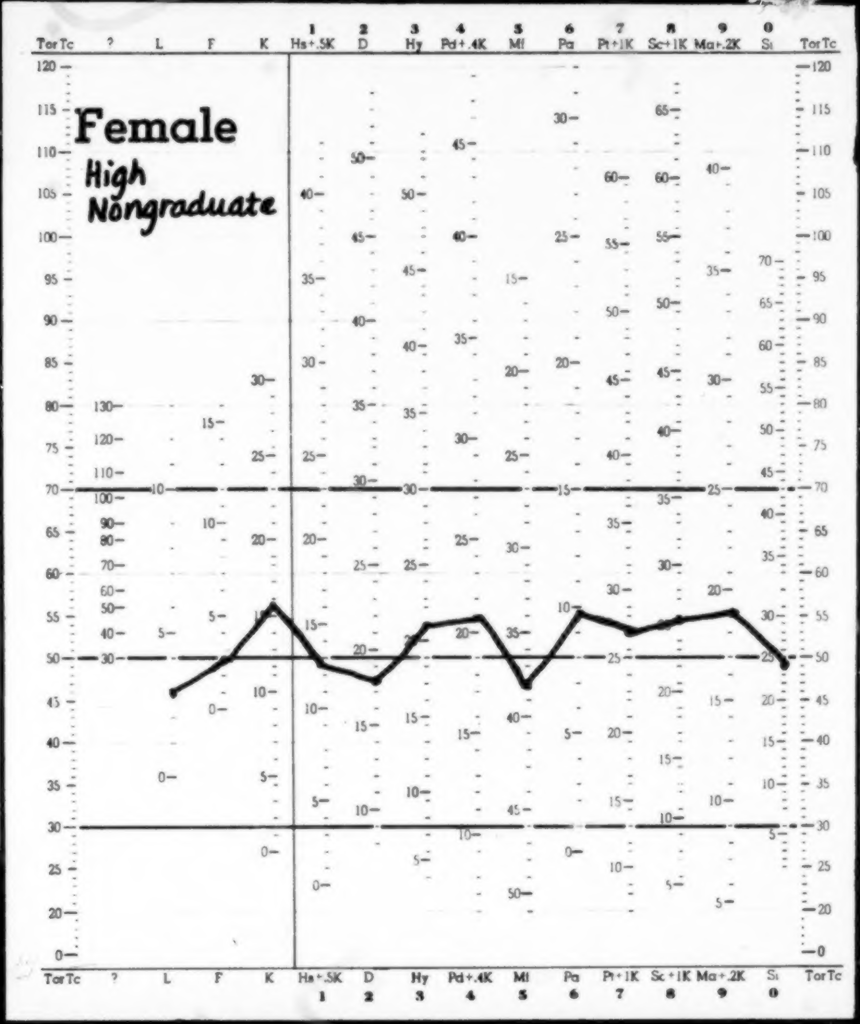


Figure 15: Freshman Mean MMPI Profile for High Ability Women Nongraduates

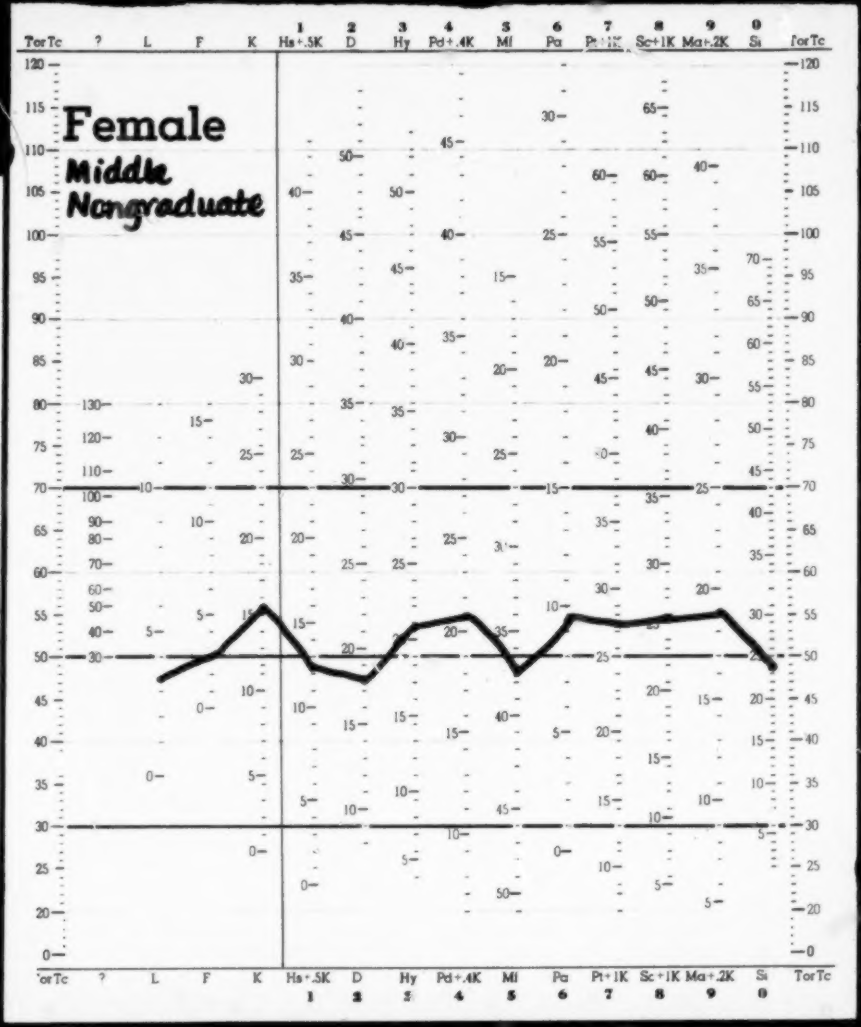


Figure 16: Freshman Mean MMPI Profile for Middle Ability Women Nongraduates

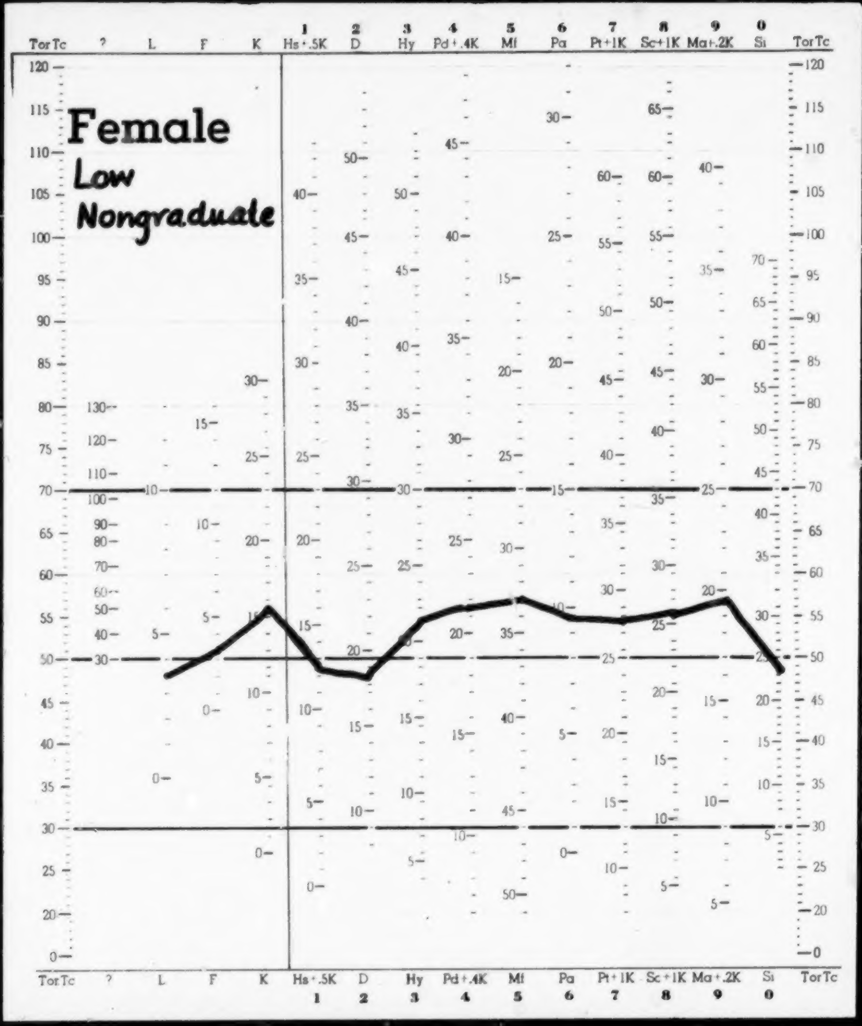


Figure 17: Freshman Mean MMPI Profile for Low Ability Women Nongraduates

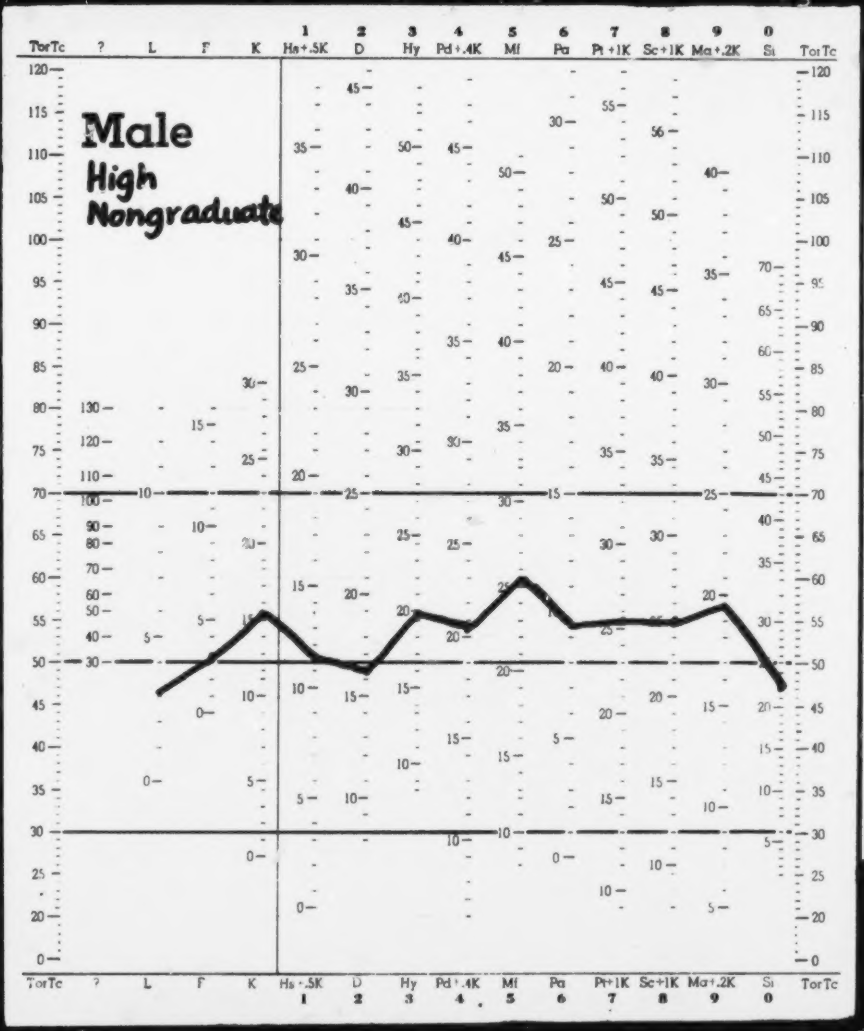


Figure 18: Freshman Mean MMPI Profile for High Ability Men Nongraduates

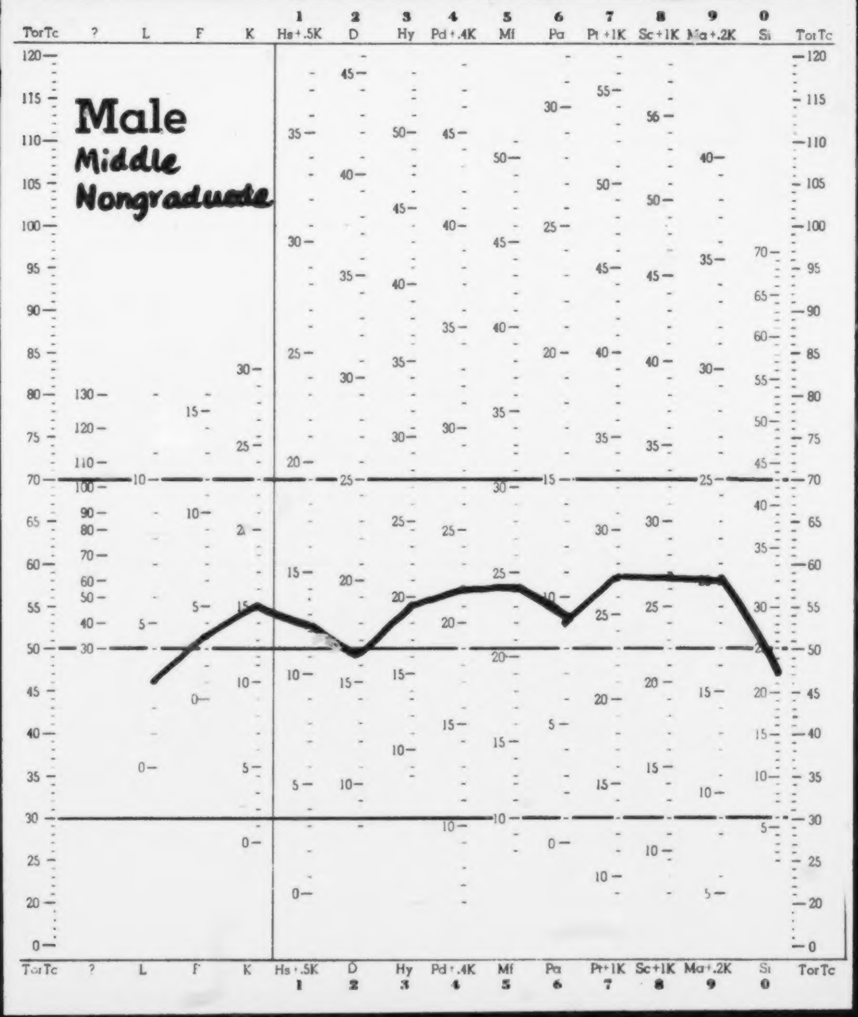


Figure 19: Freshman Mean MMPI Profile for Middle Ability Men Nongraduates

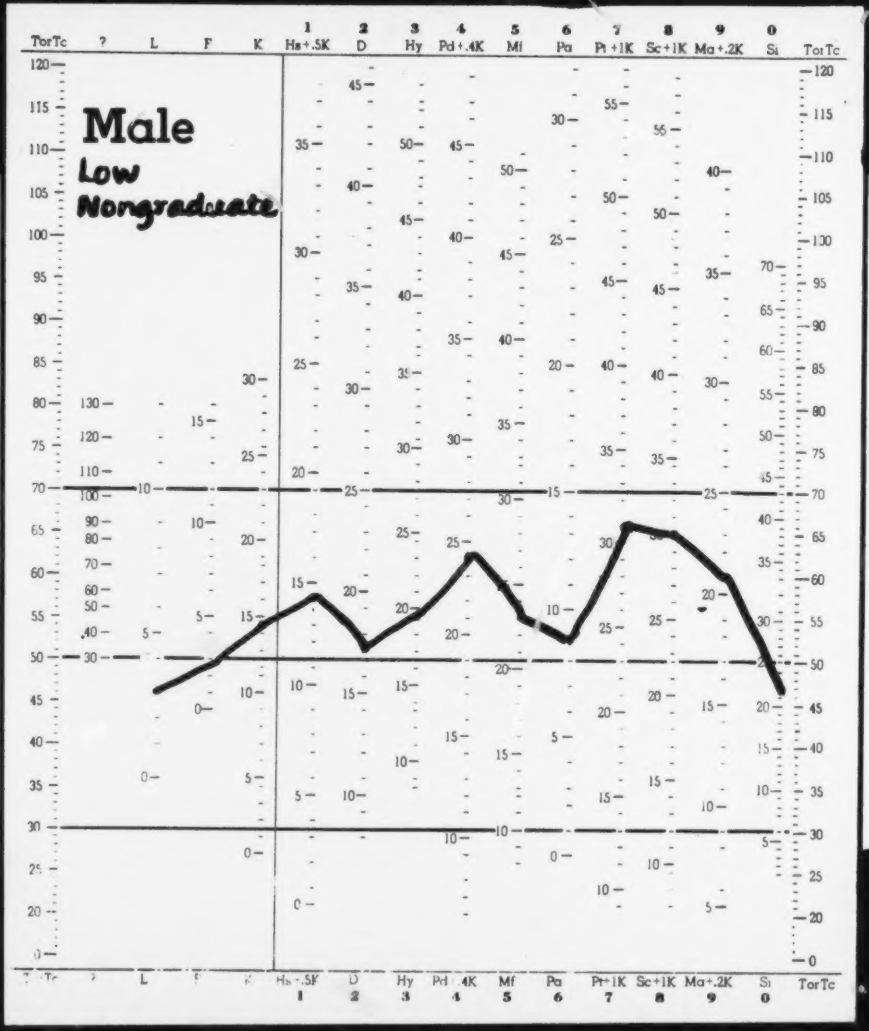


Figure 20: Freshman Mean MMPI Profile for Low Ability Men Nongraduates

Appendix D

Table 38

Frequency and Percentage Scoring Within the T Score Categories on the MMPI Scales for the Women and Men Graduates of High, Middle, and Low Ability

Grad and Ability		MMPI Scales and T Score Categories																	
		L						F						K					
		70+		50-69		≤49		70+		50-69		49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	-	-	302	49.1	313	50.9	6	1.0	280	45.5	329	53.5	24	3.9	487	79.2	104	16.9
	Mid	-	-	268	48.1	289	51.9	3	0.5	257	46.1	297	53.3	23	4.1	423	75.9	111	19.9
	Lo	-	-	186	49.2	192	50.8	4	1.1	188	49.7	186	49.2	18	4.8	279	73.8	81	21.4
Subtotal		0	0.0	756	48.8	794	51.2	13	0.8	725	46.8	812	52.4	65	4.2	1189	76.7	296	19.1
MALE GRAD	Hi	-	-	137	33.3	275	66.7	3	0.7	199	48.3	210	51.0	11	2.7	296	71.8	105	25.5
	Mid	-	-	286	34.7	539	65.3	7	0.8	454	55.0	364	44.1	22	2.7	582	70.5	220	26.7
	Lo	-	-	260	39.6	397	60.4	11	1.7	381	58.0	265	40.3	35	5.3	456	69.4	166	25.3
Subtotal		0	0.0	683	36.1	1211	63.9	21	1.1	1034	54.6	839	44.3	68	3.6	1334	70.4	491	25.9
Total		0	0.0	1439	41.8	2005	58.2	34	1.0	1759	51.1	1651	47.9	133	3.9	2523	73.3	787	22.9

[a] Profiles with T scores of 70 or above on Scale L were considered invalid and eliminated from the MMPI analyses.

χ^2, df, p< 62.12, 5, .0001 -- -- -- 35.32, 10, .0001

Table continued

Appendix D

Table 38 continued

Grad and Ability		MMPI Scales and T Score Categories																	
		1						2						3					
		70+		50–69		≤49		70+		50–69		≤49		70+		50–69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	6	1.0	251	40.8	358	58.2	11	1.8	194	31.5	410	66.7	9	1.5	432	70.2	174	28.3
	Mid	3	0.5	236	42.4	318	57.1	4	0.7	186	33.4	367	65.9	8	1.4	382	68.6	167	30.0
	Lo	7	1.9	174	46.0	197	52.1	7	1.9	140	37.0	231	61.1	7	1.9	284	75.1	87	23.0
Subtotal		16	1.0	661	42.6	873	56.3	22	1.4	520	33.5	1008	65.0	24	1.5	1098	70.8	428	27.6
MALE GRAD	Hi	9	2.2	218	52.9	185	44.9	21	5.1	201	48.8	190	46.1	5	1.2	320	77.7	87	21.1
	Mid	63	7.6	314	45.3	388	47.0	41	5.0	358	43.4	426	51.6	18	2.2	614	74.4	193	23.4
	Lo	162	24.7	298	45.4	197	30.0	50	7.6	301	45.8	306	46.6	17	2.6	502	76.4	138	21.0
Subtotal		234	12.4	890	47.0	770	40.7	112	5.9	860	45.4	922	48.7	40	2.1	1436	75.8	418	22.1
Total		250	7.3	1551	45.0	1643	47.7	134	3.9	1380	40.1	1930	56.0	64	1.9	2534	73.6	846	24.6

χ^2, df, $p <$ 451.23, 10, .00001 130.89, 10, .00001 25.34, 10, .005

Table continued

Appendix D

Table 38 - continued

Grad and Ability		MMPI Scales and T Score Categories																	
		4						5						6					
		70+		50-69		≤ 49		70+		50-69		≤ 49		70+		50-69		≤ 49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	26	4.2	404	65.7	185	30.1	6	1.0	209	34.0	400	65.0	31	5.0	478	77.7	106	17.2
	Mid	20	3.6	392	70.4	145	26.0	7	1.3	205	36.8	345	61.9	21	3.8	412	74.0	124	22.3
	Lo	20	5.3	268	70.9	90	23.8	11	2.9	135	35.7	232	61.4	15	4.0	277	73.3	86	22.8
Subtotal		66	4.3	1064	68.6	420	27.1	24	1.5	549	35.4	977	63.0	67	4.3	1167	75.3	316	20.4
MALE GRAD	Hi	22	5.3	289	70.1	101	24.5	82	19.9	276	67.0	54	13.1	19	4.6	297	72.1	96	23.3
	Mid	90	10.9	584	70.8	151	18.3	100	12.1	554	67.2	171	20.7	24	2.9	567	68.7	234	28.4
	Lo	170	25.9	407	61.9	80	12.2	81	12.3	420	63.9	156	23.7	32	4.9	440	67.0	185	28.2
Subtotal		282	14.9	1280	67.6	332	17.5	263	13.9	1250	66.0	381	20.1	75	4.0	1304	68.8	515	27.2
Total		348	10.1	2344	68.1	752	21.8	287	8.3	1799	52.2	1358	39.4	142	4.1	2471	71.7	83.	24.1
χ^2, df, $p <$				289.20,		10,	.00001		740.22,		10,	.00001			36.11,		10,	.0001	

Table continued

Appendix D

Table 38 - continued

Grad and Ability		MMPI Scales and T Score Categories																	
		7						8						9					
		70+		50-69		≤49		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD	Hi	19	3.1	401	65.2	195	31.7	17	2.8	449	73.0	149	24.2	40	6.5	373	60.7	202	32.8
	Mid	17	3.1	377	67.7	163	29.3	19	3.4	374	67.1	164	29.4	49	8.8	341	61.2	167	30.0
	Lo	16	4.2	276	73.0	86	22.8	19	5.0	265	70.1	94	24.9	36	9.5	242	64.0	100	26.5
Subtotal		52	3.4	1054	68.0	444	28.6	55	3.5	1088	70.2	407	26.3	125	8.1	956	61.7	469	30.3
MALE GRAD	Hi	36	8.7	277	67.2	99	24.0	27	6.6	293	71.1	92	22.3	32	7.8	256	62.1	124	30.1
	Mid	129	15.6	508	61.6	188	22.8	117	14.2	558	67.6	150	18.2	110	13.3	544	65.9	171	20.7
	Lo	270	41.1	298	45.4	89	13.5	244	37.1	327	49.8	86	13.1	119	18.1	429	65.3	109	16.6
Subtotal		435	23.0	1083	57.2	376	19.9	388	20.5	1178	62.2	328	17.3	261	13.8	1229	64.9	404	21.3
Total		487	14.1	2137	62.0	820	23.8	443	12.9	2266	65.8	735	21.3	386	11.2	2185	63.4	873	25.3
χ^2, df, $p <$		570.35, 10, .00001						501.02, 10, .00001						29.43, 10, .001					

Table continued

Table 38 - continued

Grad and Ability		MMPI Scales and T Score Categories 10 70+ f	%	50-69 f	%	≤ 49 f	%	Total f	%
FEMALE GRAD	Hi	32	5.2	241	39.2	342	55.6	615	39.7
	Mid	8	1.4	222	39.9	326	58.6	557	35.9
	Lo	11	2.9	152	40.2	215	56.9	378	24.4
Subtotal		51	3.3	615	39.7	883	57.0	1550	100.0
MALE GRAD	Hi	17	4.1	160	38.8	235	57.0	412	21.8
	Mid	26	3.2	266	32.3	532	64.6	825	43.6
	Lo	17	2.6	248	37.9	390	59.5	657	34.7
Subtotal		60	3.2	674	35.6	1157	61.2	1894	100.0
Total		111	3.2	1289	37.4	2040	59.2	3444	100.0

χ^2, df, $p <$ 29.43, 10, .001

Appendix D

Table 39

Tests of Differences in Proportions, and Frequency and Percentage Scoring Within the T Score Categories for MMPI Scales L, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 for the Women and Men Graduates of High, Middle, and Low Ability

Grad and Ability		MMPI Scales and T Score Categories											
		L						K					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD (N=1550)	Hi	-	-	302	49.1^{b,d,f}	313	50.9^{a,c,e}	24	3.9	487	79.2^{b,d,f}	104	16.9^{a,c,e}
	Mid	-	-	268	48.1^{h,j,l}	289	51.9^{g,i,k}	23	4.1	423	75.9^{i,k}	111	19.9$^{g.h.j}$
	Lo	-	-	186	49.2^{n,p,r}	192	50.8^{m,o,q}	18	4.8	279	73.8	81	21.4^{l}
MALE GRAD (N=1894)	Hi	-	-	137	33.3^{b,h,n}	275	66.7^{a,g,m}	11	2.7	296	71.8^{b}	105	25.5^{a,g}
	Mid	-	-	286	34.7^{d,j,p}	539	65.3^{c,i,o}	22	2.7	582	70.5^{d,i}	220	26.7^{c,h,l}
	Lo	-	-	260	39.6^{f,l,r}	397	60.4^{e,k,q}	35	5.3	456	69.4^{f,k}	166	25.3^{e,j}
z p<		^{a,b}±5.03 .0001		^{c,d}±5.51 .0001		^{e,f}±3.42 .001		^{a}-3.35 .001		^{b}2.71 .01	^{c}-4.44 .0001	^{d}3.71 .001	^{e}-3.64 .001
z p<		^{g,h}±4.64 .0001		^{i,j}±5.00 .0001		^{k,l}±2.99 .01		^{f}3.98 .0001		^{g}-2.05 .05	^{h}-2.93 .01	^{i}2.21 .05	^{j}-2.21 .05
z p<		^{m,n}±4.56 .0001		^{o,p}±4.79 .0001		^{q,r}±3.01 .001		^{k}2.54 .05		^{l}-1.99 .05			

Table continued

Appendix D

Table 39 continued

Grad and Ability		MMPI Scales and T Score Categories 1 70+ f	%	50-69 f	%	≤49 f	%	2 70+ f	%	50-69 f	%	≤49 f	%
FEMALE GRAD (N=1550)	Hi	6	$1.0^{d,f}$	298	40.8^{b}	358	$58.2^{a,c,e}$	11	$1.8^{c,f,i}$	194	$31.5^{b,e,h}$	410	$66.7^{a,d,g}$
	Mid	3	0.5	236	42.4^{h}	318	$57.1^{g,i,j}$	4	0.7	186	$33.4^{k,m,o}$	367	$55.9^{j,l,n}$
	Lo	7	$1.9^{l,n}$	174	46.0	197	$52.1^{k,m}$	7	$1.9^{r,u,x}$	140	$37.0^{q,t,w}$	231	$61.1^{p,s,v}$
MALE GRAD (N=1894)	Hi	9	2.2	218	$52.9^{b,h}$	185	$44.9^{a,g,k}$	21	$5.1^{c,r}$	201	$48.8^{b,k,q}$	190	$46.1^{a,j,p}$
	Mid	63	$7.6^{d,l}$	374	45.3	388	$47.0^{c,i}$	41	$5.0^{f,u}$	358	$43.4^{e,m,t}$	426	$51.6^{d,l,s}$
	Lo	162	$24.7^{f,n}$	298	45.4	197	$30.0^{e,j,m}$	50	$7.6^{i,x}$	301	$45.8^{h,o,w}$	306	$46.6^{g,n,v}$
z		${}^{a}4.19$	${}^{b}-3.82$	${}^{c}4.20$	${}^{d}-5.85$			${}^{a}6.55$	${}^{b}-5.57$	${}^{c}-2.99$	${}^{d}5.72$	${}^{e}-4.57$	
p<		.001	.0001	.0001	.0001			.0001	.0001	.01	.0001	.0001	
z		${}^{e}10.14$	${}^{f}-12.47$	${}^{g}3.75$	${}^{h}-3.25$			${}^{f}-3.21$	${}^{g}7.22$	${}^{h}-5.22$	${}^{i}-4.86$		
p<		.0001	.0001	.0001	.001			.0001	.0001	.0001	.0001		
z		${}^{i}3.67$	${}^{j}9.52$	${}^{k}2.03$	${}^{l}-3.98$	${}^{m}7.06$		${}^{j}6.15$	${}^{k}-4.84$	${}^{l}5.23$	${}^{m}-3.73$	${}^{n}6.75$	
p<		.001	.0001	.05	.0001	.0001		.0001	.0001	.0001	.0001	.0001	
z		${}^{n}-9.58$						${}^{o}-4.40$	${}^{p}4.23$	${}^{q}-3.33$	${}^{r}-2.46$	${}^{s}3.06$	
p<		.0001						.0001	.0001	.001	.05	.01	
z								${}^{t}-2.08$	${}^{u}-2.56$	${}^{v}4.51$	${}^{w}-2.75$	${}^{x}-3.91$	
p<								.05	.05	.0001	.01	.0001	

Table continued

Appendix D

Table 39 continued

Grad and Ability		MMPI Scales and T Score Categories: 3 70+ f	%	50-69 f	%	≤49 f	%	4 70+ f	%	50-69 f	%	≤49 f	%
FEMALE GRAD (N-1550)	Hi	9	1.5	432	$70.2^{b,e}$	174	$28.3^{a,c,d}$	26	$4.2^{c,e}$	404	65.7^{b}	185	$30.1^{a,d}$
	Mid	8	1.4	382	$68.6^{g,i,k}$	167	$30.0^{f,h,j}$	20	$3.6^{g,j}$	392	70.4^{i}	145	$26.0^{f,h}$
	Lo	7	1.9	284	75.1	87	23.0	20	$5.3^{l,o}$	268	70.9^{n}	90	23.8
MALE GRAD (N=1894)	Hi	5	1.2	320	$77.7^{b,g}$	87	$21.1^{a,f}$	22	5.3	289	70.1	101	24.5
	Mid	18	2.2	614	74.4^{i}	193	$23.4^{c,h}$	90	$10.9^{c,g,l}$	584	70.8^{b}	151	$18.3^{a,f,k}$
	Lo	17	2.6	502	$76.4^{e,k}$	138	$21.0^{d,j}$	170	$25.9^{e,j,o}$	407	$61.9^{i,n}$	80	$12.2^{d,h,m}$
z		$^{a}2.59$	$^{b}-2.63$	$^{c}2.11$	$^{d}3.02$	$^{e}-2.49$		$^{a}5.23$	$^{b}-2.06$	$^{c}-4.61$	$^{d}7.86$	$^{e}-10.69$	
p<		.01	.01	.05	.001	.05		.0001	.05	.0001	.0001	.0001	
z		$^{f}3.10$	$^{g}-3.13$	$^{h}2.74$	$^{i}-2.37$	$^{j}3.59$		$^{f}3.44$	$^{g}-4.93$	$^{h}6.19$	$^{i}3.09$	$^{j}-10.65$	
p<		.001	.001	.01	.05	.001		.001	.0001	.0001	.001	.0001	
z		$^{k}-3.05$						$^{k}2.23$	$^{l}-3.14$	$^{m}4.86$	$^{n}2.91$	$^{o}-8.24$	
p<		.001						.05	.001	.0001	.01	.0001	

Table continued

Appendix D

Table 39 continued

Grad and Ability		MMPI Scales and T Score Categories											
		5						6					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD (N=1550)	Hi	6	$1.0^{c,f,i}$	209	$34.0^{b,e,h}$	400	$65.0^{a,d,g}$	31	5.0^{e}	478	$77.7^{b,d,g}$	106	$17.2^{a,c,f}$
	Mid	7	$1.3^{l,o,r}$	205	$36.8^{k,n,q}$	345	$61.9^{j,m,p}$	21	3.8	412	$74.0^{i,k}$	124	$22.3^{h,j}$
	Lo	11	$2.9^{u,x,*}$	135	$35.7^{t,w,z}$	232	$61.4^{s,v,y}$	15	4.0	277	73.3^{m}	86	22.8^{l}
MALE GRAD (N=1894)	Hi	82	$19.9^{c,l,u}$	276	$67.0^{b,k,t}$	54	$13.1^{a,j,s}$	19	4.6	297	72.1^{b}	96	23.3^{a}
	Mid	100	$12.1^{f,o,x}$	554	$67.2^{e,n,w}$	171	$20.7^{d,m,v}$	24	2.9^{e}	567	$68.7^{d,i}$	234	$28.4^{c,h,l}$
	Lo	81	$12.3^{i,r,*}$	420	$63.9^{h,q,z}$	156	$23.7^{g,p,y}$	32	4.9	440	$67.0^{g,k,m}$	185	$28.2^{f,j}$
z		$^{a}16.43$ $^{b}-10.38$ $^{c}-10.62$ $^{d}17.00$						$^{a}-2.40$ $^{b}2.06$ $^{c}-4.92$ $^{d}3.78$ $^{e}2.09$					
p<		.0001 .0001 .0001 .0001						.05 .05 .0001 .0001 .05					
z		$^{e}-12.47$ $^{f}-8.01$ $^{g}14.84$ $^{h}-10.67$						$^{f}-4.63$ $^{g}4.28$ $^{h}-2.54$ $^{i}2.10$ $^{j}-2.35$					
p<		.0001 .0001 .0001 .0001						.0001 .0001 .05 .05 .05					
z		$^{i}-8.01$ $^{j}15.27$ $^{k}9.29$ $^{l}-9.94$ $^{m}15.54$						$^{k}2.66$ $^{l}-2.04$ $^{m}2.12$					
p<		.0001 .0001 .0001 .0001 .0001						.01 .05 .05					
z		$^{n}-11.12$ $^{o}-7.41$ $^{p}13.46$ $^{q}-9.42$ $^{r}-7.41$											
p<		.0001 .0001 .0001 .0001 .0001											
z		$^{s}14.10$ $^{t}-8.79$ $^{u}-7.40$ $^{v}13.87$ $^{w}-10.23$											
p<		.0001 .0001 .0001 .0001 .0001											
z		$^{x}-5.12$ $^{y}12.04$ $^{z}-8.76$ $^{*}-5.13$											
p<		.0001 .0001 .0001 .0001											

Table continued

Appendix D

Table 39 continued

Grad and Ability		MMPI Scales and T Score Categories					
		7			8		
		70+	50-69	≤49	70+	50-69	≤49
		f %	f %	f %	f %	f %	f %
FEMALE GRAD (N=1550)	Hi	19 $3.1^{b,d,g}$	401 65.2^{f}	195 $31.7^{a,c,e}$	17 $2.8^{a,d,g}$	449 $73.0^{c,f}$	149 $24.2^{b,e}$
	Mid	17 $3.1^{h,k,n}$	377 $67.7^{j,m}$	163 $29.3^{i,l}$	19 $3.4^{i,k,n}$	374 67.1^{m}	164 $29.4^{h,k,l}$
	Lo	16 $4.2^{o,q,t}$	276 $73.0^{p,s}$	86 22.8^{r}	19 $5.0^{p,s}$	265 70.1^{r}	94 $24.9^{o,q}$
MALE GRAD (N=1894)	Hi	36 $8.7^{b,h,o}$	277 67.2	99 24.0^{a}	27 $6.6^{a,i}$	293 71.1	92 22.3^{h}
	Mid	129 $15.6^{d,k,q}$	508 $61.6^{j,p}$	188 $22.8^{c,i}$	117 $14.2^{d,k,p}$	558 67.6^{c}	150 $18.2^{b,j,o}$
	Lo	270 $41.1^{g,n,t}$	298 $45.4^{f,m,s}$	89 $13.5^{e,l,r}$	244 $37.1^{g,n,s}$	327 $49.8^{f,m,r}$	86 $13.1^{e,l,q}$
z		$^{a}2.67$ $^{b}-3.94$	$^{c}3.79$ $^{d}-7.76$	$^{e}7.77$	$^{a}-2.94$ $^{b}2.80$	$^{c}2.20$ $^{d}-7.38$	$^{e}5.11$ $^{f}8.49$
$p<$		.01 .0001	.0001 .0001	.0001	.01 .01	.05 .0001	.0001 .0001
z		$^{f}7.11$ $^{g}-16.17$	$^{h}-3.85$ $^{i}2.32$	$^{j}2.32$	$^{g}-15.17$ $^{h}2.48$	$^{i}-2.27$ $^{j}4.90$	$^{k}-6.59$
$p<$		.0001 .0001	.01 .05	.05	.0001 .05	.05 .0001	.0001
z		$^{k}-7.47$ $^{l}6.73$	$^{m}7.80$ $^{n}-15.55$	$^{o}-2.55$	$^{l}7.02$ $^{m}6.11$	$^{n}-14.21$	$^{o}2.68$ $^{p}-4.66$
$p<$		.0001 .0001	.0001 .0001	.05	.0001 .0001	.0001	.01 .0001
z		$^{p}-5.64$ $^{q}-5.64$	$^{r}3.80$ $^{s}8.62$	$^{t}-12.77$	$^{q}4.81$ $^{r}6.37$	$^{s}-11.43$ ^{t}	
$p<$		.0001 .0001	.0001 .0001	.0001	.0001 .0001	.0001	

Table continued

Table 39 continued

Grad and Ability		MMPI Scales and T Score Categories											
		9						10					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE GRAD (N=1550)	Hi	40	6.5[c,e]	373	60.7[b]	202	32.8[a,d]	32	5.2[c]	241	39.2[b]	342	55.6[a]
	Mid	49	8.8[g,i]	341	61.2	167	30.0[f,h]	8	1.4[d,g]	222	39.9[f]	326	58.7[e]
	Lo	36	9.5[l]	242	64.0	100	26.5[j,k]	11	2.9	152	40.2[i]	215	56.9[h]
MALE GRAD (N=1894)	Hi	32	7.8	256	62.1	124	30.1	17	4.1[d]	160	38.8	235	57.0
	Mid	110	13.3[c,g]	544	65.9[b]	171	20.7[a,f,j]	26	3.2[g]	266	32.2[b,f,i]	532	64.6[a,e,h]
	Lo	119	18.1[e,i,l]	429	65.3	109	16.6[d,h,k]	17	2.6[c]	248	37.9	390	59.5
z		[a]5.19		[b]-2.06		[c]-4.20	[d]6.74	[e]-6.26		[a]-3.46	[b]2.73	[c]2.42	[d]-2.61 [e]-2.23 [f]2.90
p<		.0001		.05		.0001	.0001	.0001		.001	.01	.05	.01 .05 .01
z		[f]3.93		[g]-2.59		[h]5.55	[i]-4.68	[j]2.21		[g]-2.02	[h]-2.57	[i]2.69	
p<		.0001		.01		.0001	.0001	.05		.05	.05	.01	
z		[k]3.81		[l]3.73									
p<		.0001		.0001									

Appendix D

Table 41

Frequency and Percentage Scoring Within the T Score Categories on the MMPI Scales for the Women and Men Nongraduates of High, Middle, and Low Ability

Nongrad and Ability		MMPI Scales and T Score Categories																	
		L						F						K					
		70+[a]		50-69		≤ 49		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD	Hi	-	-	158	40.9	228	59.1	4	1.0	182	47.2	200	51.8	13	3.4	286	74.1	87	22.5
	Mid	-	-	268	40.7	390	59.3	2	0.3	324	49.2	332	50.5	15	2.3	483	73.4	160	24.3
	Lo	-	-	280	46.4	323	53.6	12	2.0	306	50.7	285	47.3	29	4.8	420	69.7	154	25.5
Subtotal		0	0.0	706	42.9	941	57.1	18	1.1	812	49.3	817	49.6	57	3.5	1189	72.2	401	24.3
MALE NONGRAD	Hi	-	-	45	38.1	73	61.9	0	0.0	64	54.2	54	45.8	2	1.7	84	71.2	32	27.1
	Mid	-	-	206	37.2	348	62.8	8	1.4	336	60.6	210	37.9	16	2.9	383	69.1	155	28.0
	Lo	-	-	279	38.3	450	61.7	19	2.6	454	62.3	256	35.1	22	3.0	482	66.1	225	30.9
Subtotal		0	0.0	530	37.8	871	62.2	27	1.9	854	61.0	520	37.1	40	2.9	949	67.7	412	29.4
Total		0	0.0	1236	40.6	1812	59.4	45	1.5	1666	54.7	1337	43.9	97	3.2	2138	70.1	813	26.7

[a] Profiles with T scores of 70 or above on Scale L were considered invalid and eliminated from the MMPI analyses.

χ^2, df, $p <$ 13.16, 5, .022 67.31, 10, .00001 20.73, 10, .023

Table continued

Table 41 - continued

Nongrad and Ability		MMPI Scales and T Score Categories																
		1						2						3				
		70+		50-69		≤ 49		70+		50-69		≤ 49		70+		50-69		≤ 49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD	Hi	6	1.6	173	44.8	207	53.6	6	1.6	138	35.8	242	62.7	17	4.4	265	68.7	104	26.9
	Mid	5	0.8	277	42.1	376	57.1	6	0.9	232	35.3	420	63.8	18	2.7	436	66.3	204	31.0
	Lo	5	0.8	274	45.4	324	53.7	8	1.3	216	35.8	379	62.9	13	2.2	440	73.0	150	24.9
Subtotal		16	1.0	724	44.0	907	55.1	20	1.2	586	35.6	1041	63.2	48	2.9	1141	69.3	458	27.8
MALE NONGRAD	Hi	3	2.5	52	44.1	63	53.4	2	1.7	53	44.9	63	53.4	6	5.1	83	70.3	29	24.6
	Mid	49	8.8	258	46.6	247	44.6	19	3.4	258	46.6	277	50.0	13	2.3	409	73.8	132	23.8
	Lo	153	21.0	324	44.4	252	34.6	41	5.6	352	48.3	336	46.1	15	2.1	532	73.0	182	25.0
Subtotal		205	14.6	634	45.3	562	40.1	62	4.4	663	47.3	676	48.3	34	2.4	1024	73.1	343	24.5
Total		221	7.3	1358	44.6	1469	48.2	82	2.7	1249	41.0	1717	56.3	82	2.7	2165	71.0	801	26.3

χ^2, df, p< 333.97, 10, .00001 96.14, 10, .00001 20.42, 10, .026

Table continued

Table 41 - continued

Nongrad and Ability		MMPI Scales and T Score Categories																	
		4						5						6					
		70+		50-69		≤ 49		70+		50-69		≤ 49		70+		50-69		≤ 49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD	Hi	29	7.5	264	68.4	93	24.1	5	1.3	132	34.2	249	64.5	21	5.4	295	76.4	70	18.1
	Mid	42	6.4	426	64.7	190	28.9	9	1.4	266	40.4	383	58.2	33	5.0	480	72.9	145	22.0
	Lo	54	9.0	428	71.0	121	20.1	8	1.3	262	43.4	333	55.2	32	5.3	440	73.0	131	21.7
Subtotal		125	7.6	1118	67.9	404	24.5	22	1.3	660	40.1	965	58.6	86	5.2	1215	73.8	346	21.0
MALE NONGRAD	Hi	10	8.5	81	68.6	27	22.9	22	18.6	71	60.2	25	21.2	5	4.2	86	72.9	27	22.9
	Mid	60	10.8	382	69.0	112	20.2	48	8.7	381	68.8	125	22.6	16	2.9	390	70.4	148	26.7
	Lo	178	24.4	436	59.8	115	15.8	42	5.8	461	63.2	226	31.0	17	2.3	495	67.9	217	29.8
Subtotal		248	17.7	899	64.2	254	18.1	112	8.0	913	65.2	376	26.8	38	2.7	971	69.3	392	28.0
Total		373	12.2	2017	66.2	658	21.6	134	4.4	1573	51.6	1341	44.0	124	4.1	2186	71.7	738	24.2

χ^2, df, p< 159.16, 10, .00001 398.60, 10, .00001 35.44, 10, .0001

Table continued

Appendix D

Table 41 - continued

Nongrad and Ability		MMPI Scales and T Score Categories																	
		7						8						9					
		70+		50-69		≤ 49		70+		50-69		≤ 49		70+		50-69		≤ 49	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD	Hi	9	2.3	273	70.7	104	26.9	18	4.7	259	67.1	109	28.2	38	9.8	245	63.5	103	26.7
	Mid	18	2.7	463	70.4	177	26.9	22	3.3	467	71.0	169	25.7	56	8.5	429	65.2	173	26.3
	Lo	22	3.6	434	72.0	147	24.4	30	5.0	426	70.6	147	24.4	67	11.1	375	62.2	161	26.7
Subtotal		49	3.0	1170	71.0	428	26.0	70	4.3	1152	69.9	425	25.8	161	9.8	1049	63.7	437	26.5
MALE NONGRAD	Hi	4	3.4	81	73.7	27	22.9	7	5.9	88	10.7	23	19.5	15	12.7	75	63.6	28	23.7
	Mid	90	16.2	345	62.3	119	21.5	90	16.2	365	65.9	99	17.9	87	15.7	360	65.0	107	19.3
	Lo	268	36.8	351	48.1	110	15.1	255	35.0	367	50.3	107	14.7	159	21.8	458	62.8	112	15.4
Subtotal		362	25.8	783	55.9	256	18.3	352	25.1	820	58.5	229	16.3	261	18.6	893	63.7	247	17.6
Total		411	13.5	1953	64.1	684	22.4	422	13.8	1972	64.7	654	21.5	422	13.8	1942	63.7	684	22.4

χ^2, df, p< 511.83, 10, .00001 421.07, 10, .00001 87.96, 10, .00001

Table continued

Table 41 - continued

Nongrad and Ability		MMPI Scales and T Score Categories							
		10						Total	
		70+		50-69		≤ 49			
		f	%	f	%	f	%	f	%
FEMALE NONGRAD	Hi	18	4.7	156	40.4	212	54.9	386	23.4
	Mid	17	2.6	267	40.6	374	56.8	658	40.0
	Lo	18	3.0	232	38.5	353	58.5	603	36.6
Subtotal		53	3.2	655	39.8	939	57.0	1647	100.0
MALE NONGRAD	Hi	2	1.7	39	33.1	77	65.3	118	8.4
	Mid	13	2.4	175	31.6	365	66.0	554	39.5
	Lo	23	3.2	251	34.4	455	62.4	729	52.0
Subtotal		38	2.7	465	33.2	897	64.1	1401	100.0
Total		91	3.0	1120	36.7	1836	60.2	3048	100.0

χ^2, df, $p <$ 23.07, 10, .010

Appendix D

Table 42

Tests of Differences in Proportions, and Frequency and Percentage Scoring Within the T Score Categories for MMPI Scales L, F, K, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 for the Women and Men Nongraduates of High, Middle, and Low Ability

Nongrad and Ability		MMPI Scales and T Score Categories											
		L						F					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD (N=1647)	Hi	-	-	158	40.9	228	59.1	4	1.0	182	$47.2^{b,d}$	200	$51.8^{a,c}$
	Mid	-	-	268	40.7	390	59.3	2	0.3	324	$49.2^{f,h}$	332	$50.5^{e.g}$
	Lo	-	-	280	$46.4^{b,d}$	323	$53.6^{a,c}$	12	2.0	306	$50.7^{j,l}$	285	$47.3^{i,k}$
MALE NONGRAD (N=1401)	Hi	-	-	45	38.1	73	61.9	0	0.0	64	54.2	54	45.8
	Mid	-	-	206	37.2^{b}	348	62.8^{a}	8	1.4	336	$60.6^{b,f,j}$	210	$37.9^{a,e,i}$
	Lo	-	-	279	38.3^{d}	450	61.7^{c}	19	2.6	454	$62.3^{d,h,l}$	256	$35.1^{c,g,k}$
z		$^{a,b}\pm3.18$		$^{c,d}\pm3.00$				$^{a}4.23$		$^{b}-4.09$	$^{c}5.40$	$^{d}-4.85$	$^{e}4.38$
p<		.001		.01				.0001		.0001	.0001	.0001	.0001
z								$^{f}-3.97$		$^{g}5.77$	$^{h}-4.89$	$^{i}3.21$	$^{j}-3.39$
p<								.0001		.0001	.0001	.001	.001
z								$^{k}4.49$		$^{l}-4.23$			
p<								.0001		.0001			

Table continued

Appendix D

Table 42 continued

Nongrad and Ability		MMPI Scales and T Score Categories											
		K						1					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD (N=1647)	Hi	13	3.4	286	74.1^{b}	87	22.5^{a}	6	$1.6^{b,d}$	173	44.8	207	$53.6^{a,c}$
	Mid	15	2.3	483	73.4^{d}	160	24.3^{c}	5	$0.8^{f,h}$	277	42.1	376	$57.1^{e,g}$
	Lo	29	4.8	420	69.7	154	25.5^{e}	5	$0.8^{j,l}$	274	45.4	324	$53.7^{i,k}$
MALE NONGRAD (N=1401)	Hi	2	1.7	84	71.2	32	27.1	3	2.5	52	44.1	63	53.4
	Mid	16	2.9	383	69.1	155	28.0	49	$8.8^{b,f,j}$	258	46.6	258	$44.6^{a,e,i}$
	Lo	22	3.0	482	$66.1^{b,d}$	225	$30.9^{a,c,e}$	153	$21.0^{d,h,l}$	324	44.4	324	$34.6^{c,g,k}$
z p<		$^{a}-2.95$ .01		$^{b}2.74$ .01	$^{c}-2.72$ .01	$^{d}2.95$ .01	$^{e}-2.14$ .05	$^{a}2.73$ .01	$^{b}-4.68$ .0001	$^{c}6.15$ .0001		$^{d}-8.83$ .0001	
z p<								$^{e}4.36$ .0001	$^{f}-6.80$ .0001	$^{g}8.34$ .0001		$^{h}-11.84$ .0001	
z p<								$^{i}3.11$ .0001	$^{j}-6.46$ .0001	$^{k}7.03$ .0001		$^{l}-11.33$ .0001	

Table continued

Table 42 continued

Nongrad and Ability		MMPI Scales and T Score Categories											
		2						3					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD (N=1647)	Hi	6	1.6^{e}	138	$35.8^{b,d}$	242	$62.7^{a,c}$	17	4.4^{a}	265	68.7	104	26.9
	Mid	6	$0.9^{j,m}$	232	$35.3^{g,i,l}$	420	$63.8^{f,h,k}$	18	2.7	436	$66.3^{c,e}$	204	$31.0^{b,d}$
	Lo	8	$1.3^{p,s}$	216	$35.8^{o,r}$	379	$62.9^{n,q}$	13	2.2	440	73.0	150	24.9
MALE NONGRAD (N=1401)	Hi	2	1.7	53	44.9^{g}	63	53.4^{f}	6	5.1	83	70.3	29	24.6
	Mid	19	$3.4^{j,p}$	258	$46.6^{b,i,o}$	277	$50.0^{a,h,n}$	13	2.3	409	73.8^{c}	132	23.8^{b}
	Lo	41	$5.6^{e,m,s}$	352	$48.3^{d,l,r}$	336	$46.1^{c,k,q}$	15	2.1^{a}	532	73.0^{e}	182	25.0^{d}
z		$^{a}3.85$		$^{b}-3.30$	$^{c}5.28$	$^{d}-4.01$	$^{e}-3.22$	$^{a}2.23$		$^{b}2.78$	$^{c}-2.86$	$^{d}2.51$	$^{e}-2.72$
p<		.0001		.001	.0001	.0001	.001	.05		.01	.01	.05	.01
z		$^{f}2.15$		$^{g}-2.00$	$^{h}4.85$	$^{i}-3.99$	$^{j}-3.07$						
p<		.05		.05	.0001	.0001	.001						
z		$^{k}6.62$		$^{l}-4.91$	$^{m}-4.84$	$^{n}4.41$	$^{o}-3.71$						
p<		.0001		.0001	.0001	.0001	.001						
z		$^{p}-2.37$		$^{q}6.10$	$^{r}-4.58$	$^{s}-4.15$							
p<		.001		.0001	.0001	.0001							

Table continued

Appendix D

Table 42 continued

Nongrad and Ability		MMPI Scales and T Score Categories											
		4						5					
		70+		50-69		≤49		70+		50-69		≤49	
		f	%	f	%	f	%	f	%	f	%	f	%
FEMALE NONGRAD (N=1647)	Hi	29	7.5^{c}	264	68.4^{b}	93	24.1^{a}	5	$1.3^{c,f,i}$	132	$34.2^{b,e,h}$	249	$64.5^{a,d,g}$
	Mid	42	$6.4^{e,g}$	426	64.7	190	$28.9^{d,f}$	9	$1.4^{l,o,r}$	266	$40.4^{k,n,q}$	383	$58.2^{j,m,p}$
	Lo	54	9.0^{j}	428	71.0^{i}	121	20.1^{h}	8	$1.3^{u,x,*}$	262	$43.4^{t,w,z}$	333	$55.2^{s,v,y}$
MALE NONGRAD (N=1401)	Hi	10	8.5	81	68.6	27	22.9	22	$18.6^{c,l,u}$	71	$60.2^{b,k,t}$	25	$21.2^{a,j,s}$
	Mid	60	10.8^{e}	382	69.0	112	20.2^{d}	48	$8.7^{f,o,x}$	381	$68.8^{e,n,w}$	125	$22.6^{d,m,v}$
	Lo	178	$24.4^{c,g,j}$	436	$59.8^{b,i}$	115	$15.8^{a,f,h}$	42	$5.8^{i,r,*}$	461	$63.2^{h,q,z}$	226	$31.0^{g,p,y}$
z		$^{a}3.39$	$^{b}2.82$	$^{c}-6.91$	$^{d}3.47$	$^{e}-2.79$		$^{a}8.27$	$^{b}-5.03$	$^{c}-7.32$	$^{d}12.93$	$^{e}-10.47$	
$p<$		.001	.01	.0001	.001	.01		.0001	.0001	.0001	.0001	.0001	
z		$^{f}5.88$	$^{g}-9.18$	$^{h}2.04$	$^{i}4.25$	$^{j}-7.41$		$^{f}-4.82$	$^{g}10.76$	$^{h}-9.25$	$^{i}-3.53$	$^{j}7.42$	
$p<$		.0001	.0001	.05	.0001	.0001		.0001	.0001	.0001	.001	.0001	
z								$^{k}-3.98$	$^{l}-8.82$	$^{m}12.53$	$^{n}-9.85$	$^{o}-5.98$	
$p<$								.0001	.0001	.0001	.0001	.0001	
z								$^{p}10.19$	$^{q}-8.49$	$^{r}-4.34$	$^{s}6.76$	$^{t}-3.33$	
$p<$								.0001	.0001	.0001	.0001	.001	
z								$^{u}-8.61$	$^{v}11.35$	$^{w}-8.66$	$^{x}-5.81$	$^{y}8.92$	
$p<$								.0001	.001	.001	.0001	.0001	
z								$^{z}-7.22$	$^{*}-4.24$				
$p<$								.0001	.0001				

Table continued

Appendix D

Table 42 continued

Nongrad and Ability		MMPI Scales and T Score Categories 6 70+ f	%	6 50-69 f	%	6 ≤49 f	%	7 70+ f	%	7 50-69 f	%	7 ≤49 f	%
FEMALE NONGRAD (N=1647)	Hi	21	$5.4^{c,f}$	295	$76.4^{b,e}$	70	$18.1^{a,d}$	9	$2.3^{b,e}$	273	$70.7^{a,d}$	104	26.9^{c}
	Mid	33	5.0^{i}	480	72.9^{h}	145	22.0^{g}	18	$2.7^{h,k}$	463	$70.4^{g,j}$	177	$26.9^{f,i}$
	Lo	32	$5.3^{k,n}$	440	73.0^{m}	131	$21.7^{j,l}$	22	$3.6^{m,p}$	434	$72.0^{l,o}$	147	24.4^{n}
MALE NONGRAD (N=1401)	Hi	5	4.2	86	72.9	27	22.9	4	3.4	87	73.7	27	22.9
	Mid	16	$2.9^{c,k}$	390	70.4^{b}	148	$26.7^{a,j}$	90	$16.2^{b,h,m}$	345	$62.3^{a,g,l}$	119	21.5^{f}
	Lo	17	$2.3^{f,i,n}$	495	$67.9^{e,h,m}$	217	$29.8^{d,g,l}$	268	$36.8^{e,k,p}$	351	$48.1^{d,j,o}$	110	$15.1^{c,i,n}$
z p<		$^{a}-3.07$ .01		$^{b}2.04$ .05	$^{c}1.98$ .05	$^{d}-4.23$ .0001	$^{e}2.98$ .01	$^{a}2.69$ .01	$^{b}-6.84$ .0001	$^{c}4.78$ .0001	$^{d}7.22$ .0001	$^{e}-12.66$ .0001	
z p<		$^{f}2.72$ .01		$^{g}-3.27$ .001	$^{h}2.05$ .05	$^{i}2.68$ .01	$^{j}-1.98$ .05	$^{f}2.19$ .05	$^{g}2.98$ .01	$^{h}-8.22$ .0001	$^{i}5.42$ .0001	$^{j}8.39$ .0001	
z p<		$^{k}2.06$ .05		$^{l}-3.33$ .001	$^{m}2.01$ .05	$^{n}2.87$ .01		$^{k}-15.64$ .0001	$^{l}3.51$ .001	$^{m}-7.24$ .0001	$^{n}4.27$ .0001		
z p<								$^{o}8.80$ .0001	$^{p}-14.58$ .0001				

Table continued

Appendix D

Table 42 continued

Nongrad and Ability		8 70+ f	%	8 50-69 f	%	8 ≤49 f	%	9 70+ f	%	9 50-69 f	%	9 ≤49 f	%
FEMALE NONGRAD (N=1647)	Hi	18	$4.7^{b,e}$	259	67.1^{d}	109	$28.2^{a,c}$	38	$9.8^{b,d}$	245	63.5	103	$26.7^{a,c}$
	Mid	22	$3.3^{g,j}$	467	71.0^{i}	169	$25.7^{f,h}$	56	$8.5^{f,h}$	429	65.2	173	$26.3^{e,g}$
	Lo	30	$5.0^{l,o}$	426	70.6^{n}	147	$24.4^{k,m}$	67	$11.1^{j,l}$	375	62.2	161	$26.7^{i,k}$
MALE NONGRAD (N=1401)	Hi	7	5.9	88	10.7	23	19.5	15	12.7	75	63.6	28	23.7
	Mid	90	$16.2^{b,g,l}$	365	65.9	99	$17.9^{a,f,k}$	87	$15.7^{b,f,j}$	360	65.0	107	$19.3^{a,e,i}$
	Lo	255	$35.0^{e,j,o}$	367	$50.3^{d,i,n}$	107	$14.7^{c,h,m}$	159	$21.8^{d,h,l}$	458	62.8	112	$15.4^{c,g,k}$
z		$^{a}3.78$	$^{b}-5.48$	$^{c}5.45$	$^{d}5.36$	$^{e}-11.20$		$^{a}2.67$	$^{b}-2.60$	$^{c}4.56$	$^{d}-4.98$		
p<		.0001	.0001	.0001	.0001	.0001		.01	.0001	.0001	.0001		
z		$^{f}3.27$	$^{g}-7.73$	$^{h}5.13$	$^{i}5.13$	$^{j}-14.72$		$^{e}2.87$	$^{f}-3.87$	$^{g}5.03$	$^{h}-6.83$		
p<		.001	.0001	.0001	.0001	.0001		.01	.0001	.0001	.0001		
z		$^{k}2.70$	$^{l}-6.28$	$^{m}4.49$	$^{n}7.51$	$^{o}-13.29$		$^{i}2.97$	$^{j}-2.30$	$^{k}5.10$	$^{l}-5.18$		
p<		.01	.0001	.0001	.0001	.0001		.01	.05	.0001	.0001		

Table continued

Table 42 continued

Nongrad and Ability		MMPI Scales and T Score Categories 10 70+ f	 %	 50-69 f	 %	 ≤49 f	 %
FEMALE NONGRAD (N=1647)	Hi	18	4.7^{d}	156	40.4^{c,f}	212	54.9^{a,b,e}
	Mid	17	2.6	267	40.6^{h,j}	374	56.8^{g,i}
	Lo	18	3.0	232	38.5^{l}	353	58.5^{k}
MALE NONGRAD (N=1401)	Hi	2	1.7	39	33.1	77	65.3^{a}
	Mid	13	2.3^{d}	175	31.6^{c,h,l}	365	66.1^{b,g,k}
	Lo	23	3.2	251	34.4^{f,j}	455	62.4^{e,i}
z		^{a}-1.99	^{b}-3.45	^{c}2.79	^{d}1.96	^{e}-2.43	
p<		.05	.001	.01	.05	.05	
z		^{f}1.97	^{g}-3.28	^{h}3.24	^{i}-2.11	^{j}2.36	
p<		.05	.001	.001	.05	.05	
z		^{k}-2.63	^{l}2.45				
p<		.01	.05				